



Health Program

Health Innovation Initiative

Building Better Health:

Innovative Strategies from America's Business Leaders

A Report from the
CEO Council on Health and Innovation



September 2014



BIPARTISAN POLICY CENTER

CEO Council on Health and Innovation

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 NANTHEALTH

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BlueShield**
Association

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Walgreens

Letter from the Members of the CEO Council

To Our Colleagues,

Nearly a fifth of all spending in the United States is currently devoted to health care, and the return on that investment is low. Despite spending more per capita on health care than any other nation, we rank poorly even on the most basic measures of good health such as disability and life expectancy.

The health of the citizenry affects every aspect of American life and prosperity. Improving the nation's health must be a national imperative, and it cannot be viewed simply as the responsibility of the health care system. It is a job that requires innovation, collaboration, and leadership from all sectors.

The CEO Council on Health and Innovation came together to lead the U.S. business community in this work. Together, CEO Council companies employ nearly one million individuals in this country and provide insurance coverage for more than 150 million individuals. But our commitment extends beyond our own workforce and the members we serve. We are strongly committed to improving the health and wellness of the nation as a whole and to promoting higher-quality, cost-effective, patient-centered care.

This report outlines the many ways in which our companies are working to improve health and well-being as well as the quality, cost, and patient experience of care. Many of us plan to engage in pilots that will enable us to gauge the scalability of strategies shown to be effective in our individual companies. From the range and variety of initiatives, it is clear there is no single, one-size-fits-all solution. Rather, our efforts show that there are many routes to our destination.

America's business community has always been an effective driver of change and progress. We feel certain that the private sector can make a significant and lasting positive impact on the nation's health and health care by working together and taking action. We urge you to join us in this critically important work.



Dominic Barton
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McKinsey & Company



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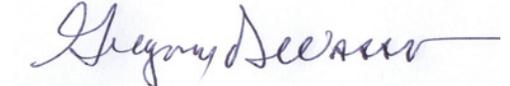
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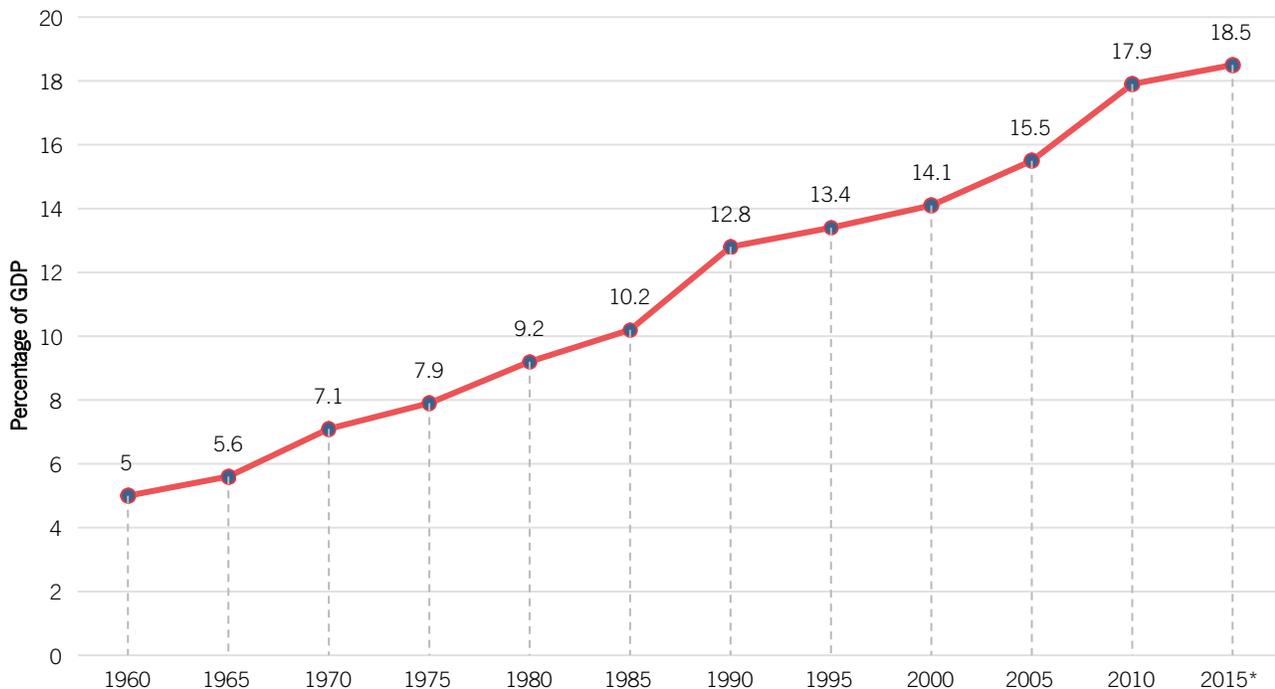


Executive Summary

Consider these facts:

- The United States spends more on health care per capita than any other nation in the world, representing nearly one-fifth of all U.S. spending—or \$2.8 trillion.¹
- Eighty-four percent of this expenditure is associated with individuals with chronic conditions, such as diabetes and heart disease.²
- In a comparison of health care in 11 nations, the United States ranks last or near last in access, efficiency, equity, and healthy lives.³
- Some estimate that an unhealthy population costs U.S. employers \$576 billion annually.⁴
- Private-sector employers—together with their employees—bear about 45 percent of the cost of the nation's health care expenditures.⁵

US Health Care Spending as Percentage of GDP, 1960-2015



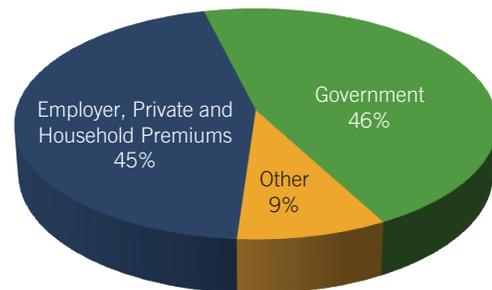
Source: "National Health Expenditures 2012 Highlights." Centers for Medicare and Medicaid Services: Research, Statistics, Data and Systems. 2013. Note: 2015 is projected(*)

The health of the nation is a vital resource. U.S. employers have begun to recognize that protecting and improving this resource requires their stewardship. An increasingly unhealthy population not only leads to decreased quality of life, premature death, and disability for American citizens, it also threatens the ability of U.S. businesses to effectively compete in a global marketplace.

The chief executives on the Bipartisan Policy Center's (BPC) CEO Council on Health and Innovation—leaders of some of the nation's largest employers—are taking bold actions to improve the health and wellness of individuals and communities, and to address the quality, cost, and patient experience of care. And they are calling upon other U.S. employers to do the same.

A Health Care Advisory Board, made up of chief executives of organizations representing clinicians, consumers, and hospitals, is providing expert guidance in this collaborative effort. In addition, former U.S. Senate Majority Leaders and Co-chairs of BPC's Health Project Tom Daschle (D-SD) and Bill Frist (R-TN) are advising the Council, and Janet Marchibroda, BPC's director of Health Innovation, is serving as its executive director.

Breakdown of National Health Care Expenditures



Source: "National Health Expenditures 2012 Highlights." Centers for Medicare and Medicaid Services: Research, Statistics, Data and Systems. 2013.

CEO Council members are employing innovative strategies that fall into three pillars, designed to:

- Improve the health and wellness of individuals;
- Improve the health of communities; and
- Improve the health care system.

Over the last year, CEO Council members have shared the strategies they have implemented within these three areas. This report explores these strategies and their benefits, the challenges associated with implementation, and the actions that employers can take to drive more widespread adoption, with the goal of improving health and health care in the United States.



Improve the Health
and Wellness
of Individuals



Improve the Health
of Communities



Improve the Health
Care System

Innovative Health and Health Care Strategies

CEO Council members are improving the health and wellness of their employees and other beneficiaries, improving the health of communities, and improving the health care system through a range of innovative strategies, described below.

Company	Strategy
Aetna	<p>Improving the Health and Wellness of Individuals</p> <ul style="list-style-type: none"> ■ Offering a Metabolic Syndrome program to reduce risk factors, improve productivity, reduce stress, and promote physical activity ■ Using mobile applications to increase consumer engagement ■ Using mindfulness and viniyoga programs to reduce stress <p>Improving the Health Care System</p> <ul style="list-style-type: none"> ■ Using a provider collaboration model through Medicare Advantage to improve the quality of care and lower health care costs ■ Providing clinical and information technology (IT) infrastructure for accountable care
Bank of America	<p>Improving the Health and Wellness of Individuals</p> <ul style="list-style-type: none"> ■ Employing innovative engagement strategies to raise awareness of and engage employees in its workplace wellness programs. More than 221,000 employees and spouses/partners completed 2014 wellness activities and 96,000 employees enrolled in the organization's 2013 physical activity challenge, significantly exceeding national average employee-participation results
Blue Cross and Blue Shield Companies	<p>Improving the Health and Wellness of Individuals</p> <ul style="list-style-type: none"> ■ Combining participation-based and outcomes-based incentives to reduce costs and improve health outcomes ■ Providing personalized customer support to help ensure informed decision-making, resulting in considerable cost savings ■ Embedding employee-engagement methods into health benefit product design <p>Improving the Health of Communities</p> <ul style="list-style-type: none"> ■ Building partnerships at the local level to address life-changing health interventions (e.g., childhood obesity, diabetes) ■ Supporting a culture of volunteerism and civic entrepreneurship among employees ■ Targeting philanthropy toward programs that demonstrate clear and tangible outcomes ■ Investing in developing the primary workforce of tomorrow <p>Improving the Health Care System</p> <ul style="list-style-type: none"> ■ Driving a shift toward value-based care models that: <ul style="list-style-type: none"> – Put the patient first – Move away from fee-for-service reimbursement to arrangements based on value – Instill accountability across the care continuum

Company	Strategy
Institute for Advanced Health and NantHealth	<p>Improving the Health Care System</p> <ul style="list-style-type: none"> ■ Building the infrastructure for wireless connectivity and patient portals for the secure, real-time delivery of health information to patient, provider, and caregiver ■ Launching the HBox in partnership with wireless carriers, and integrating HBox with wearable devices ■ Launching secure, mobile, patient portals with mobile operators ■ Implementing a modern, mobile, patient-centered, cloud-based continuous health care learning system for population health and care coordination across the continuum of a patient's life: from acute life-threatening episodes ("illness"), to high-cost chronic comorbid disease management ("willness"), to the daily maintenance of health and wellness of individuals ("wellness") ■ Managing chronic comorbid diseases ("willness") <ul style="list-style-type: none"> – Care coordination and reduction in hospital admissions for patients with chronic comorbid diseases – Infrastructure for automated assessments and proactive identification of patients likely to be at risk for repeat readmissions – Care planning and care execution infrastructure for delivering proactive care and improving compliance to care plans – Real-time medication adherence – Delivery of bedside pharmacy services that reduce risk of readmissions through medication fulfillment – Intelligent decision theater and remote monitoring – Intelligent wearable devices in a clinical setting ■ Managing acute life-threatening episodes ("illness"): <ul style="list-style-type: none"> – Coordination of cancer care across the United States through the creation of advanced virtual organizations – Driving cognitive support and evidence-based care across the United States ■ Driving molecularly driven clinical decisions in cancer care
McKinsey & Company	<p>Improving the Health and Wellness of Individuals</p> <ul style="list-style-type: none"> ■ Rooting strategy in deep knowledge of its employee population and making programs available that promote general health and wellness and that respond to targeted cost and care needs <p>Improving the Health Care System</p> <ul style="list-style-type: none"> ■ Applying data analytics to design and test new payment models and to help identify priorities for clinical improvement ■ Providing a fact base on health care for public consumption

Company	Strategy
The Coca-Cola Company	<p>Improving the Health and Wellness of Individuals</p> <ul style="list-style-type: none"> ■ Establishing a culture of well-being and leveraging the creativity of its employees to develop new, innovative approaches to health and wellness with a focus on the emotional, financial, physical, and social <p>Improving the Health of Communities</p> <ul style="list-style-type: none"> ■ Investing in physical fitness programs across multiple communities ■ Engaging clinicians in promoting exercise and wellness ■ Educating children on the importance of physical activity and good nutrition and assuring that disadvantaged youth have access to sporting equipment ■ Scaling community-based programs that include all community sectors working together to reduce and prevent childhood obesity
Verizon Communications	<p>Improving the Health and Wellness of Individuals</p> <ul style="list-style-type: none"> ■ Engaging and empowering employees with interactive education and support tools, easily accessible preventive care, and chronic care management programs to improve health outcomes <p>Improving the Health of Communities</p> <ul style="list-style-type: none"> ■ Deploying technology-enabled, mobile health clinics to connect children to quality health care ■ Leveraging technology to improve chronic disease management among underserved women ■ Using remote monitoring tools to enable underserved seniors with chronic conditions to age in place longer <p>Improving the Health Care System</p> <ul style="list-style-type: none"> ■ Providing coverage for online care ■ Delivering enabling technologies to support improvements in health and health care
Walgreen Co.	<p>Improving the Health and Wellness of Individuals</p> <ul style="list-style-type: none"> ■ Lowering barriers to preventive care by offering vaccines and biometric screening free-of-charge to employees ■ Offering chronic condition management and wellness coaching to reduce health risks and lower health care costs <p>Improving the Health of Communities</p> <ul style="list-style-type: none"> ■ Rapidly improving immunization rates by raising awareness of the importance of vaccination among the public, engaging with the public health community, investing in solutions that increase access to coverage, and expanding accessibility to all CDC-recommended vaccines ■ Increasing access to care through convenient health care clinics ■ Using technology to promote better care coordination

Call to Action

CEO Council members call on the nation's employers to join with them and commit to taking the following actions:

1. To improve the health and wellness of individuals,

employers should implement comprehensive health and wellness programs for employees that address the following needs and begin tracking and sharing outcomes to promote learning and improvement:

- Nutrition and physical activity
- Tobacco cessation
- Emotional and behavioral health
- Condition management, including chronic disease management.

2. **To improve the health of communities,** employers should begin to understand and support the health of communities by reviewing metrics already being captured in the following areas and collaborating with local public- and private-sector leaders on programs designed to promote improvements in any or all of the following:

- Health behaviors, with a focus on physical activity, nutrition, and tobacco use
- Clinical care and health outcomes, with a focus on access to care, preventive services, and prevalence of chronic disease
- Social and economic factors that have been shown to improve the health of communities, with a focus on education, housing, access to nutritious foods and beverages, and childhood poverty.

3. **To improve the health care system,** employers should make value-based purchasing a factor in their choice of health plans for their employees. For example, employers should:

- Partner with health plans to:
 - Increase the share of provider payments that are value-based and promote delivery system innovations that have been shown to deliver value
 - Promote reporting of meaningful performance data focused on quality, efficiency, productivity, patient engagement and satisfaction, and health outcomes
 - Support stronger relationships between individuals and primary care providers
- Support employee and beneficiary health care decision-making by increasing the transparency of performance information, providing consumer education tools, and implementing value-based benefit design.

The CEO Council aims to engage hundreds of companies in making this commitment and will both measure progress and publicly highlight their leadership.

Menu of Employer Actions to Improve Health and Health Care

Recognizing the barriers and challenges associated with advancing widespread adoption of action within the three pillars, CEO Council members have come to agreement on a menu of possible actions employers could take to improve the health and wellness of individuals, the health of communities, and the health care system.

Pillar	Menu of Employer Actions
<p>Improving the Health and Wellness of Individuals</p>	<p>Immediate:</p> <ol style="list-style-type: none"> 1. Broadly share strategies and best practices for addressing common challenges—such as employee engagement—to assist with successful implementation among employers, and share the impact of various strategies on health outcomes, costs, productivity, absenteeism, employee motivation, and employee satisfaction <hr/> <p>Near-Term:</p> <ol style="list-style-type: none"> 2. Prioritize and accelerate the adoption of comprehensive health and wellness programs that address the following needs: <ul style="list-style-type: none"> ■ Nutrition and weight management ■ Physical activity ■ Smoking cessation ■ Emotional and behavioral health, including stress management and depression ■ Condition management, including chronic disease management 3. Leverage the use of electronic and social media tools to increase accessibility of, interest in, ease of use of, and adoption of health and wellness programs: <ul style="list-style-type: none"> ■ Online educational resources and programs ■ Interactive tracking tools, such as those that track medications ■ Self-monitoring tools, including those that connect with personal devices ■ Online communities to provide peer support ■ Online “coaches” to increase accessibility of support ■ Patient access to information contained in electronic health records 4. Implement incentives to increase employee adoption of health and wellness programs 5. Modify benefit design to encourage preventive activities 6. Make preventive activities, such as screenings and immunizations, more accessible by bringing them on-site periodically 7. Support a smoke-free workplace 8. Begin tracking, evaluating, and sharing on an aggregate basis specific outcomes of health and wellness programs—including those related to health outcomes, costs, productivity, absenteeism, and employee satisfaction—to facilitate learning and improvement. In the first year, strive to use common metrics such as the following, building in additional metrics over time: <ul style="list-style-type: none"> ■ Biometric measures, including blood glucose, blood pressure, and cholesterol levels, as well as obesity ■ Behavioral measures, including those related to nutrition, physical activity, and tobacco use ■ Emotional and behavioral health measures, including those related to stress and depression

Pillar	Menu of Employer Actions
Improving the Health and Wellness of Individuals (cont.)	<p>Long-Term</p> <p>9. Collaborate with other employers in the evaluation of health and wellness programs to contribute to the evidence base and advance effective implementation in the field</p>
Improving the Health of Communities	<p>Immediate</p> <p>1. Understand the health of communities in which you have employees by reviewing metrics already being captured in the following areas:</p> <ul style="list-style-type: none"> a. Health behaviors, with a focus on: <ul style="list-style-type: none"> ■ Physical activity, nutrition, and obesity, for both adults and children ■ Tobacco use b. Clinical care and health outcomes, with a focus on: <ul style="list-style-type: none"> ■ Access to care, including the percentage of uninsured and access to primary care ■ Preventive services, including the percentage of adults and children who have received appropriate immunizations and the percentage of adults, as applicable, who have received appropriate diabetic, blood pressure, and mammography screenings ■ Prevalence of chronic disease, including percentage of individuals with diabetes, heart disease, and cancer c. Social and economic factors that have been shown to improve the health of individuals and communities, with a focus on education, housing, access to nutritious foods and beverages, and childhood poverty <p>Near-Term:</p> <p>2. Commit to and develop plans for improving the health of communities, working in collaboration with local public- and private-sector leaders and focusing on one or more of the above-identified areas</p> <p>3. Join forces with other employers to establish national goals for community health improvement focusing at a minimum on the above-identified areas</p> <p>Long-Term:</p> <p>4. Collaborate with local public- and private-sector leaders, including schools, to support and implement programs that will improve health in at least one community, focusing on one or more of the above-identified areas</p> <p>5. Build community health into decision-making regarding selection of new sites for expansion</p>
Improving the Health Care System	<p>Immediate:</p> <p>1. Assess the broad array of current requirements for and levels of performance associated with providers in the markets where coverage is offered</p> <p>2. Assess current payment models used by public- and private-sector payers to reimburse providers in covered markets</p> <p>3. Partner with health plans to offer coverage options for practical technology-enabled care delivery tools that have been shown to improve access and outcomes, which may include telemedicine and remote patient monitoring</p>

Pillar	Menu of Employer Actions
<p>Improving the Health Care System (cont.)</p>	<p>Near-Term:</p> <ul style="list-style-type: none"> 4. Promote demonstration of value through measurement, continuing to move toward a collection of meaningful performance measures associated with cost, quality, prevention, and the patient experience of care 5. Measure and increase the percentage of payments to providers that are based on value and outcomes rather than volume 6. Promote electronic information-sharing among providers, laboratories, and patients to support improvements in the cost, quality, and coordination of care, and encourage interoperability of electronic health records to support such information-sharing 7. Identify the health plans that offer telemedicine options during open enrollment 8. Support stronger relationships between individuals and primary care providers 9. Promote transparency of clinicians’ (1) performance on a range of meaningful performance measures, including those associated with cost, quality, prevention, and the patient experience of care; (2) ability to electronically exchange clinical information with other providers for transitions of care; and (3) ability for patients to electronically access and use information contained in their health records 10. Promote the development of educational resources, guides, and tools to support employer implementation of strategies to improve the health care system
	<p>Long-Term:</p> <ul style="list-style-type: none"> 11. Continue to measure and increase the percentage of payments to providers that are based on value and outcomes rather than volume 12. Educate employees about meaningful differences in performance among providers and implement value-based insurance design coupled with transparency tools to support beneficiaries in seeking care from high-value providers

Conclusion

Improving the health of the nation, and the quality and cost of health care, is imperative if the United States is to compete in the global marketplace. The history of U.S. business is steeped in innovation, ingenuity, insight, and leadership. Today’s business leaders are applying these

qualities, and more, to the challenge of improving health and health care. They urge their fellow business leaders to join them in this important effort, to improve and preserve the health of the nation’s most important natural resource—its citizens—and to enhance the quality and cost-effectiveness of the care they receive.



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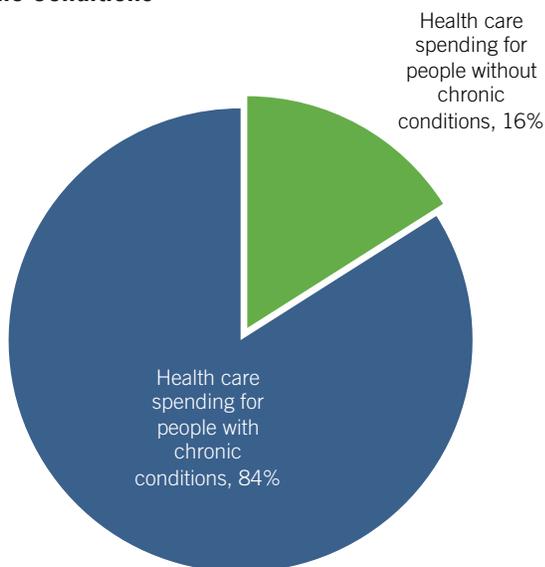


Introduction

The United States spends more on health care per capita than any other nation in the world, and yet its citizens are not the world's healthiest. The vast majority of U.S. health care spending—an estimated 84 percent—is associated with chronic diseases and conditions such as diabetes and heart disease.⁶

The human costs of an unhealthy population are significant, and so is the economic impact. Some experts estimate that an unhealthy workforce costs U.S. employers \$576 billion annually due to lost productivity, health care costs, and wage replacement.⁷ This threatens the nation's ability to compete with strength in the global marketplace. Employers have increasingly recognized this fact, as well as the potential they hold to influence the health of the nation.

U.S. Health Care Spending Associated With Chronic Conditions



Source: "Chronic Care: Making the Case for Ongoing Care." Robert Wood Johnson Foundation. 2010. From "Medical Expenditure Panel Survey", 2006.

Employers can have a powerful impact on helping individuals and communities develop and/or maintain healthy habits that can improve health or better manage chronic conditions. The organizations represented on the CEO Council are leading the way toward a new understanding of health and health care, and a new vision of a health care system in which everyone plays an important role. Together they represent nearly one million members of the U.S. workforce and more than 150 million "covered lives" (e.g., employees, their families, and retirees covered by health insurance). Their impact is broader than this, however, through programs that promote health and wellness in the communities they serve.

These organizations are successful in the marketplace because they recognize and pursue the power of innovation in developing and delivering products and services, managing their organizations, and meeting the needs of their customers. They bring this same innovative approach to improving and supporting the health and wellness of their workforces, developing creative strategies, and employing best practices. Through this Council, these companies are sharing their health strategies and best practices in order to highlight and spread successful initiatives to other organizations.

Goals of the CEO Council

The goals of the CEO Council on Health and Innovation are to:

- Share innovative strategies and best practices that Council members are using to promote health and wellness and improve the quality, cost-effectiveness, and patient experience of care;
- Encourage other employers to implement strategies that will improve health and health care in the United States; and

- Promote learning and improvement by tracking and sharing outcomes and best practices.

CEO Council members are focused on advancing innovative strategies that fall into three pillars:

1. Those that improve the health and wellness of individuals (e.g., employees, their families, and retirees);
2. Those that improve the health of the communities; and
3. Those that improve the health care system.

A Health Care Advisory Board, made up of chief executives of organizations representing clinicians, consumers, and hospitals, is providing expert guidance in this collaborative effort. In addition, former U.S. Senate Majority Leaders and Co-chairs of BPC's Health Project Tom Daschle (D-SD) and Bill Frist (R-TN) are advising the Council, along with Janet Marchibroda, BPC's director of Health Innovation, who serves as the Council's executive director.

Organization of This Report

This report contains the following:

- For each of the three pillars:
 - An overview and benefits
 - Common challenges and key imperatives
 - A menu of actions that employers can take—in the immediate-term, the near-term, and in the long-term
- An overview of the individual innovative strategies that CEO Council members have used to improve health and health care across the three pillars, including a detailed description of the strategies they have employed, benefits and impact, lessons learned, and key take-aways for employers.
- A call to action to other CEOs to take specific actions to improve health and health care across the three pillars.



Improve the Health
and Wellness
of Individuals



Improve the Health
of Communities



Improve the Health
Care System

The Problem:

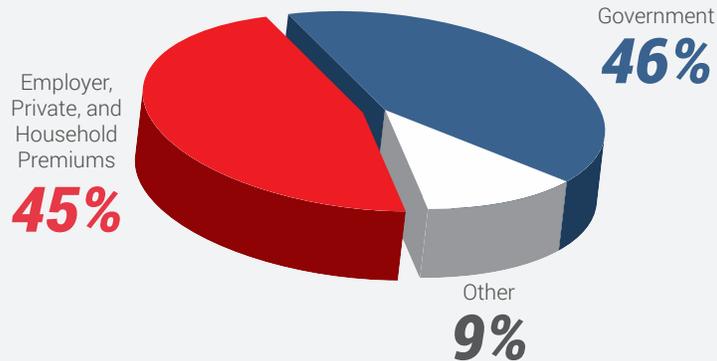
\$2.8
TRILLION

spent on health care
in the U.S.

50%
of U.S. Adults

with at least
one chronic condition

The private sector bears 45%
of the burden



One Important Solution:

Employer Action and Innovation



Improve the Health
and Wellness
of Individuals



Improve the Health
of Communities



Improve the Health
Care System

Call to Action

The U.S. business community is a powerful force for change. Making national progress toward health care's triple aim—better health, better quality care, and lower costs—will not only improve the health of the nation, it will also contribute to global competitiveness for U.S. companies. But this progress will require leadership and action. The CEO Council strongly endorses the many opportunities for both leadership and action that are detailed in this report, and urges employers to take note and take action.

Making a Commitment

CEO Council members call upon CEOs to join with them and commit to taking the following actions:

1. Recognize that good health and good health care require your efforts.

The changes that are required to achieve the goals of better health and better care will not happen without strong leadership from the business community. Employers are uniquely positioned to drive change in the health care system by exercising their purchasing power and by aligning and engaging with other employers, community leaders, and health care leaders around shared goals. CEO involvement is critically important if we are to improve the health of the American workforce and maintain a competitive advantage in the global marketplace.

2. Commit to meeting three goals within the next three years.

1. To improve the health and wellness of individuals, employers should implement comprehensive health and wellness programs for employees that address the following needs, and they should begin tracking and sharing outcomes to promote learning and improvement:

- Nutrition and physical activity
- Tobacco cessation
- Emotional and behavioral health
- Condition management, including chronic disease management

2. To improve the health of communities, employers should begin to understand and support the health of communities by reviewing metrics already being captured in the following areas and collaborating with local public- and private-sector leaders on programs designed to promote improvements in any or all of the following:

- Health behaviors, with a focus on physical activity, nutrition, and tobacco use
- Clinical care and health outcomes, with a focus on access to care, preventive services, and prevalence of chronic disease
- Social and economic factors that have been shown to improve the health of communities, with a focus on education, housing, access to nutritious foods and beverages, and childhood poverty

3. To improve the health care system, employers should make value-based purchasing a factor in their choice of health plans for their employees. For example, employers should:

- Partner with health plans to:
 - Increase the share of provider payments that are value-based and promote delivery system innovations that have been shown to deliver value
 - Promote reporting of meaningful performance data focused on quality, efficiency, productivity, patient engagement and satisfaction, and health outcomes

- Support stronger relationships between individuals and primary care providers
- Support employee and beneficiary health care decision-making by increasing the transparency of performance information, providing consumer education tools, and implementing value-based benefit design

3. Share your strategies and outcomes with your peers.

Help spread innovation and proven strategies so that fellow employers can join the effort to improve health and health care. Share outcomes to facilitate learning and improvement.

4. Join the dialogue, use your influence, and stay involved.

This is not just a report. This is the beginning of a dialogue, a process, and a roadmap for moving forward. The strategies in this report have demonstrated success, but

each can be improved and built on. Get involved. Build on these ideas, shape them for your own organization's needs, and share the results. Use your influence to move toward better health and health care.

5. Accept our call to action: Make a commitment to improve health and health care in the United States.

Measuring Success

If adopted, the recommendations detailed in this report will yield measurable improvements in the health and well-being of the nation. The success of these efforts will be captured and shared in three ways: (1) by tracking the number and publicizing the names of employers who commit to and pursue action across any of the three pillars; (2) by tracking and sharing outcomes achieved; and (3) by measuring general employer progress.



Dominic Barton

Managing Director
McKinsey & Company

"Employee health and wellness is a big priority for us at McKinsey because we're a people organization. A critical factor to us being able to be effective is having people who are energetic, excited about what they do, and healthy. It is incumbent on us to ensure that the people who come to this organization believe that they can be healthy and productive and that we do everything we can to encourage and support them in achieving this goal."

About McKinsey & Company

McKinsey & Company is a global management consulting firm and a trusted advisor to the world's leading governments, businesses, and institutions. McKinsey's scale, scope, and knowledge allow it to address problems that no one else can. The organization has deep functional and industry expertise as well as breadth of geographical reach. McKinsey & Company is passionate about taking on immense challenges that matter to its clients and, often, to the world. For more information, visit www.mckinsey.com.



Mark T. Bertolini

Chairman, CEO, and President Aetna

“With the overwhelming costs of health care, we realize the need to solve the health care problem in order to have a healthy and productive population and well-functioning economy. We are creating new conversations about how health care is delivered and paid for, and how today’s system often gets in the way of delivering the health care people need, when they need it, at a cost they can afford. By sharing our message, conveying information and results, and opening our minds to new thinking, we are helping to build the high-quality, truly integrated health care system necessary to support global needs.”

About Aetna

Aetna (NYSE: AET) is one of the nation’s leading diversified health care benefits companies, serving an estimated 44 million people with information and resources to help them make better informed decisions about their health care. Aetna offers a broad range of traditional, voluntary and consumer-directed health insurance products and related services, including medical, pharmacy, dental, behavioral health, group life and disability plans, medical management capabilities, Medicaid health care management services, workers’ compensation administrative services, and health information technology products and services. Aetna’s customers include employer groups, individuals, college students, part-time and hourly workers, health plans, health care providers, governmental units, government-sponsored plans, labor groups, and expatriates. For more information, see www.aetna.com and the 2014 Aetna story about how Aetna is helping to build a healthier world.



Alex Gorsky

**Chairman and CEO
Johnson & Johnson**

“While the United States and most of the developed world do a very good job with “sick care” today, it is an unsustainable model and true “health care” depends on a broader, more holistic approach. A commitment to wellness can truly turn the tide against the chronic diseases that have reached epidemic proportions worldwide. Our aspiration at Johnson & Johnson is helping people everywhere live longer, healthier, and happier lives – and that begins with our own employees. Since our founding over 125 years ago, we have provided health, wellness, and fitness programs for our associates. We believe true wellness means an integration of physical, mental, and emotional health. This is not only an important commitment to our people, but is now and always has been, a true business advantage for our Company.”

About Johnson & Johnson

Caring for the world, one person at a time, inspires and unites the people of Johnson & Johnson (NYSE:JNJ). We embrace research and science—bringing innovative ideas, products, and services to advance the health and well-being of people. Our approximately 128,300 employees at more than 275 Johnson & Johnson operating companies work with partners in health care to touch the lives of more than a billion people, every day, throughout the world.



Muhtar Kent

**Chairman and CEO
The Coca-Cola Company
(Co-Chair)**

"The most critical component of building a winning culture at The Coca-Cola Company is ensuring the well-being of the 157,000 hard-working men and women who bring our brands to life each and every day in more than 200 countries. We can't possibly deliver our mission of refreshing the world without first creating a climate for our people and the communities we serve to feel inspired, happy, fulfilled, and healthy."

About The Coca-Cola Company

The Coca-Cola Company (NYSE: KO) is the world's largest beverage company, refreshing consumers with more than 500 sparkling and still brands. Led by Coca-Cola, the world's most valuable brand, our company's portfolio features 16 billion-dollar brands, including Diet Coke, Fanta, Sprite, Coca-Cola Zero, vitaminwater, Powerade, Minute Maid, Simply, Georgia, and Del Valle. Globally, we are the No. 1 provider of sparkling beverages, ready-to-drink coffees, and juices and juice drinks. Through the world's largest beverage distribution system, consumers in more than 200 countries enjoy our beverages at a rate of more than 1.9 billion servings a day. For more information, visit www.coca-cola.com.



Lowell C. McAdam

Chairman and CEO
Verizon Communications
(Co-Chair)

"We live in an increasingly connected and mobile society. At Verizon, we're using the power of these technologies to transform health care. By putting the tools for managing health care in the hands of employees, customers, and health care providers, we're helping create a healthier workforce, a more efficient health care system, and a society with greater capacity to innovate to address this critical issue."

About Verizon Communications

Verizon Communications Inc. (NYSE, Nasdaq: VZ), headquartered in New York, is a global leader in delivering broadband and other wireless and wireline communications services to consumer, business, government and wholesale customers. Verizon Wireless operates America's most reliable wireless network, with 104.6 million retail connections nationwide. Verizon also provides converged communications, information and entertainment services over America's most advanced fiber-optic network, and delivers integrated business solutions to customers in more than 150 countries. A Dow 30 company with more than \$120 billion in 2013 revenues, Verizon employs a diverse workforce of 177,800. For more information, visit www.verizon.com.



Brian T. Moynihan

Chief Executive Officer
Bank of America Corporation

“Our goal is to provide health benefits that are competitive, fair, and connect employees to what they need. We’ve designed wellness and other benefit programs that may ultimately lower costs, but far more important, the programs are in response to what employees told us they want and are helping create a healthier workforce.”

About Bank of America

Bank of America Corporation (NYSE: BAC) is one of the world’s largest financial institutions, serving individual consumers, small businesses, middle-market businesses, and large corporations with a full range of banking, investing, asset management, and other financial and risk management products and services. The company provides unmatched convenience in the United States, serving approximately 49 million consumer and small business relationships with approximately 5,000 retail banking offices and approximately 16,000 ATMs and award-winning online banking with 30 million active users and more than 15 million mobile users. Bank of America is among the world’s leading wealth management companies and is a global leader in corporate and investment banking and trading across a broad range of asset classes, serving corporations, governments, institutions, and individuals around the world. Bank of America offers industry-leading support to approximately three million small business owners through a suite of innovative, easy-to-use online products and services. The company serves clients through operations in more than 40 countries. For more information, visit www.bankofamerica.com.



Scott P. Serota

**President and CEO
Blue Cross and Blue Shield Association**

“Private-sector leadership, partnership, and collaboration are the order of the day if we’re going to create a more efficient, sustainable health care delivery system. As health care leaders, the Blues are championing this cause, working with our partners—employers, members, doctors, and hospitals—to step up to that challenge.”

About the Blue Cross and Blue Shield Association

The Blue Cross and Blue Shield Association is a national federation of 37 independent, community-based and locally operated Blue Cross and Blue Shield companies that collectively provide health care coverage for nearly 104 million members—one-in-three Americans. For more information on the Blue Cross and Blue Shield Association and its member companies, please visit www.bcbs.com. We encourage you to connect with us on Facebook, check out our videos on YouTube, follow us on Twitter, and check out *The Bcbs Blog* for up-to-date information about BCBSA.



Patrick Soon-Shiong, MD

**Chairman and CEO
Institute for Advanced Health and NantHealth
(Co-Chair)**

"We have embarked on the urgent mission to address the root cause of poor outcomes and high cost of health care in our nation. Only by providing evidence-based, coordinated, proactive, rather than reactive, care can we hope to bend the cost curve and achieve better outcomes in our aging population. The rapid advance in scientific knowledge and increased complexity of health care has exceeded the cognitive capacity of caregivers today, potentially resulting in diagnostic errors and inappropriate treatment decisions. Through the power of supercomputing and mobile ubiquity, we are building the world's first patient-centered, cloud-based "continuous health care learning system" to enable 21st century care for all, and a modern platform for population health management and care coordination across the continuum of illness (acute, life-threatening disease) to willness (chronic disease) to wellness." (Follow @ solvehealthcare.)

About the Chan Soon-Shiong Institute for Advanced Health

The Chan Soon-Shiong Institute for Advanced Health (IAH) is a 501c(3) nonprofit medical research organization focused on changing the way health information is shared. IAH is building a public-private coalition dedicated to working with health care, academic, government, and private-sector partners to transform health care by enhancing the availability, privacy, and integration of health information across the country. Established in 2011, IAH received core funding from Dr. Patrick Soon-Shiong and his wife Michele B. Chan, who have pledged through their family foundation more than \$1 billion for health care and health information projects.

About NantHealth

NantHealth is a transformational health care company converging science and technology through a single integrated clinical platform. Through the power of data, NantHealth solutions enable better diagnostics, improved clinical outcomes at reduced costs, and advanced wellness. We empower physicians, patients, payers, and researchers to transcend the traditional barriers of today's health care system.

The vision of NantHealth, a medical science-driven company, is to build the world's first cloud-based "continuous health care learning system" to enable 21st century care for all, and a modern platform for population health management across the continuum of illness (acute, life-threatening disease) to willness (chronic disease) to wellness.

Through the convergence of cloud-based supercomputers, intelligent sensors, machine-to-machine wireless interconnectivity, artificial intelligence, and federated secure grid-computing, NantHealth has launched the next-generation advanced population health management system. By providing actionable information at time of need, augmenting human cognition, and enabling coordinated proactive evidence-based care at the right time, and the right place, this system addresses the root cause of poor outcomes in patients with high-cost chronic illnesses and life-threatening disease, such as cancer.



Gregory D. Wasson

President and CEO
Walgreen Co.

"Walgreens' purpose is to help people get, stay, and live well—in the communities we serve and in our company for our team members. As a health care provider and employer, we gain valuable insights every day on providing affordable, accessible care in today's fast-changing and challenging environment. With our recent decision to offer a health care exchange to meet Walgreen employee needs and expand their choices, we continue on our path of health care innovation."

About the Walgreen Co.

As the nation's largest drugstore chain with fiscal 2012 sales of \$72 billion, Walgreens' (NYSE: WAG) vision is to become America's first choice for health and daily living. Each day, Walgreens provides more than six million customers the most convenient, multichannel access to consumer goods and services and trusted, cost-effective pharmacy, health and wellness services, and advice in communities across America. Walgreens' scope of pharmacy services includes retail, specialty, infusion, medical facility, and mail service, along with respiratory services. These services help improve health outcomes and lower costs for payers including employers, managed care organizations, health systems, pharmacy benefit managers, and the public sector. For more information, visit www.walgreens.com.



Health Program

Health Innovation Initiative



Chapter 1: Improving the Health and Wellness of Individuals

Overview and Benefits

More than ever, employers are taking actions to improve health and wellness among their employees, recognizing the significant impact that health and health care can have on a company's overall success. Employers implement health and wellness programs to improve productivity, reduce absenteeism, improve health outcomes, and offer benefits that appeal to both current and prospective employees.

According to the Centers for Disease Control and Prevention (CDC), four behaviors—inactivity, poor nutrition, tobacco use, and frequent alcohol consumption—are the primary causes of chronic disease in the United States, resulting in increased prevalence of diabetes, heart disease, and chronic pulmonary conditions.⁸

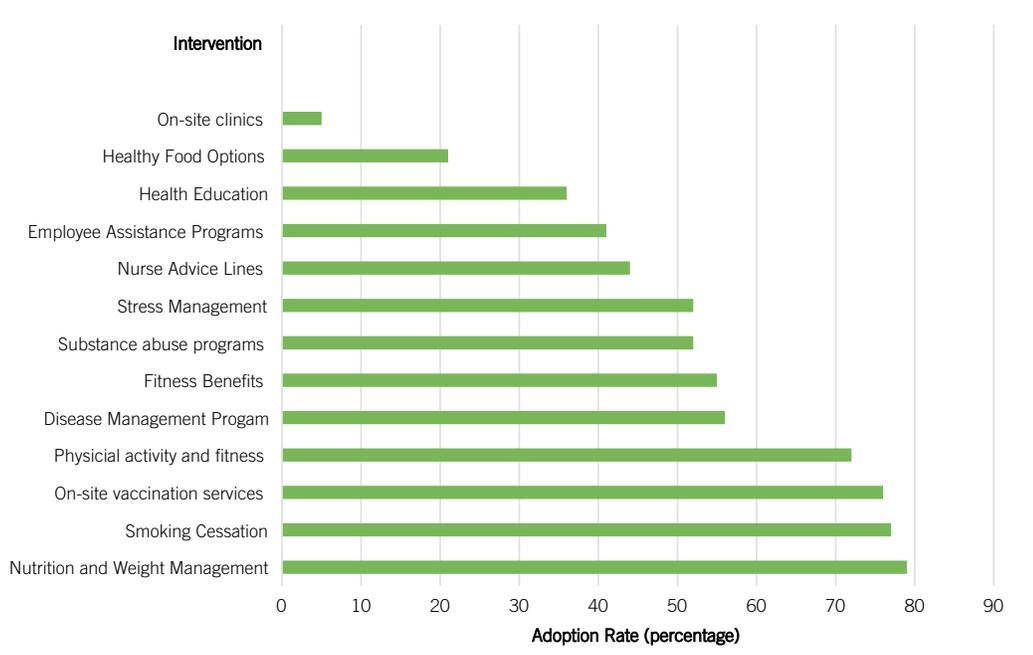
An unhealthy population translates to an unhealthy workforce; some estimate this costs U.S. employers \$576 billion annually. Thirty-nine percent (\$227 billion) of this cost is due to lost productivity, 40 percent (\$232 billion) is tied to medical and pharmacy costs, and the remainder—\$117 billion, or approximately 20 percent—is associated with wage replacement.⁹ One study found that lost productivity, absenteeism, and presenteeism can be three to four times higher for individuals with unhealthy conditions than for those without.¹⁰ An increasingly unhealthy population not only leads to a decreased quality of life and premature death and disability for American citizens, it also threatens the ability of U.S. businesses to compete in a global marketplace.

Stress also has an increasing impact on the workforce. For the first time, stress has been ranked as the top workforce risk issue.¹¹ High-level stress impacts employee productivity and health care costs. Employees with higher levels of stress have been found to have significantly higher medical expenditures than those without stress.^{12,13}

To address concerns about an unhealthy workforce, employers are investing in health and wellness programs, including disease management programs. About half of U.S. employers with 50 or more employees—a group that employs more than three-quarters of the nation's workforce—currently offer workplace wellness programs.¹⁴ Larger employers are more likely to have wellness programs in place. One recent study indicates that the percentage of mid-size employers (e.g., 1,000–5,000 employees) offering health and wellness programs is—for the first time—decreasing.¹⁵

Health and wellness efforts take four primary forms: screening to support early detection of diseases; preventive interventions that support healthy living and limit the onset of diseases; strategies for appropriate management of existing diseases and related complications; and other health promotion activities, such as onsite clinics, employee assistance programs, and fitness benefits.

Table 1 presents an overview of current adoption rates among employers of different types of health and wellness and disease management programs.¹⁶

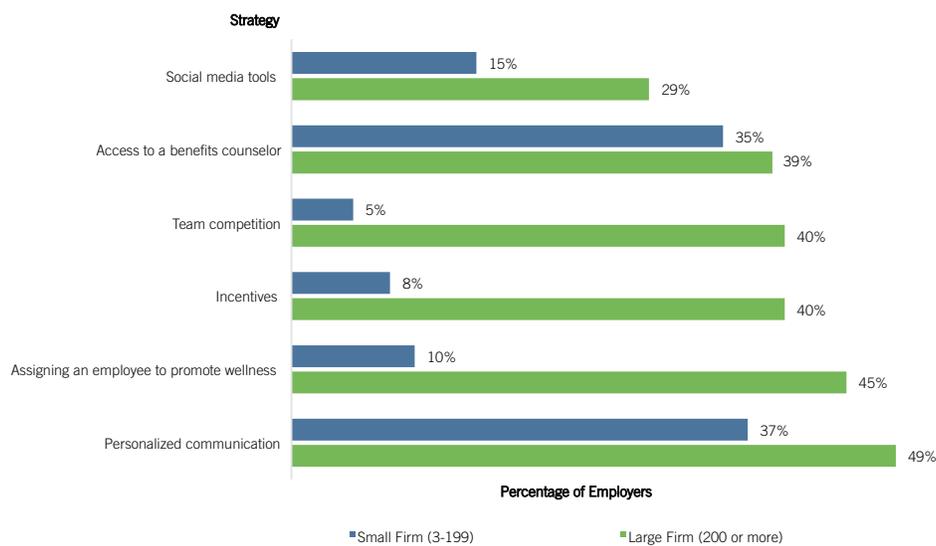
Table 1. Current Employer Adoption Rates of Wellness and Disease Programs

Source: Soeren Mattke, et al. "Workplace Wellness Programs Study." RAND Corporation. 2013

Health and wellness programs have been shown to improve health-related behaviors and health status of participating employees.¹⁷ However, results of studies about the return on investment of wellness programs are mixed. One meta-analysis of research results on the costs and savings of wellness programs found that every dollar spent saved \$3.27 in medical costs and \$2.73 in absenteeism costs.¹⁸ Other studies have shown that decreases in health care costs are not statistically significant.¹⁹ The amount of published research is limited, in part because few employers have made it a priority to evaluate and publish wellness program results in peer-reviewed publications. According to one recent study, 45 percent of employers do not measure the impact of their wellness activities and 47 percent lack the information needed to calculate return on investment.²⁰

Common Challenges and Key Imperatives

One of the most common challenges associated with workplace wellness programs is the difficulty of motivating employees to participate in program offerings. Seventy-seven percent of employers with wellness programs cite employee engagement as the biggest obstacle to success.²¹ Average participation rates of employees identified for inclusion in various wellness programs, such as those related to fitness, smoking cessation, weight/obesity, or disease management have been low—less than 20 percent.²² Barriers to employee participation include insufficient incentives, inconvenient locations, time limitations, and lack of interest or feeling that the program is a low priority.^{23,24}

Table 2. Percent of Firms Using Specific Wellness Strategies

Source: "2013 Employer Health Benefits: Summary of Findings." The Henry J. Kaiser Family Foundation.

Employers use a range of strategies to promote wellness programs but their use varies by employer size. Table 2 summarizes the percentage of small and large firms offering health benefits and wellness programs that are using specific strategies.²⁵

Experiences of some of the CEO Council members show that the use of electronic tools can increase employee engagement in health and wellness programs. Ninety-one percent of American adults have a cell phone, 56 percent have a smartphone, and 34 percent have a tablet computer.²⁶ Increasingly, Americans are using their mobile phones for health and health care.²⁷

Employers need strategies to address barriers and help engage employees in their health and wellness programs. Sharing of best practices and evaluation of alternative

strategies and their impact can be used to help motivate employees and boost their engagement in employer-based programs.

Other barriers cited by employers that have not offered a health and wellness program in the past include lack of resources, lack of information on cost-effectiveness, and low interest from both management and employees.²⁸ Robust evaluation of the impact of health and wellness programs on health outcomes, health care costs, and productivity—and publication of those results—can help all employers gain a better understanding of the impact of various types of programs on both costs and health outcomes. Increased sharing of experiences, including interventions and their impact, can also play a key role in helping employers effectively implement health and wellness strategies that achieve their desired impact.

Menu of Employer Actions

The following is a menu of possible actions employers could take to improve the health and wellness of individuals.

Immediate-Term	<ol style="list-style-type: none"> 1. Broadly share strategies and best practices for addressing common challenges—such as employee engagement—to assist with successful implementation among employers, and share the impact of various strategies on health outcomes, costs, productivity, absenteeism, employee motivation, and employee satisfaction
Near-Term	<ol style="list-style-type: none"> 2. Prioritize and accelerate the adoption of comprehensive health and wellness programs that address the following needs: <ul style="list-style-type: none"> ■ Nutrition and weight management ■ Physical activity ■ Smoking cessation ■ Emotional and behavioral health, including stress management and depression ■ Condition management, including chronic disease management 3. Leverage the use of electronic and social media tools to increase accessibility of, interest in, ease of use of, and adoption of health and wellness programs: <ul style="list-style-type: none"> ■ Online educational resources and programs ■ Interactive tracking tools, such as those that track medications ■ Self-monitoring tools, including those that connect with personal devices ■ Online communities to provide peer support ■ Online “coaches” to increase accessibility of support ■ Patient access to information contained in electronic health records 4. Implement incentives to increase employee adoption of health and wellness programs 5. Modify benefit design to encourage preventive activities 6. Make preventive activities, such as screening and immunization, more accessible by bringing them on-site periodically 7. Support a smoke-free workplace 8. Begin tracking and sharing specific outcomes of health and wellness programs, including those related to health outcomes, costs, productivity, absenteeism, and employee satisfaction to facilitate learning and improvement. In the first year, strive to use common metrics such as the following, building in additional metrics over time: <ul style="list-style-type: none"> ■ Biometric measures: <ul style="list-style-type: none"> – Blood glucose levels – Blood pressure levels – Cholesterol levels – Obesity ■ Behavioral measures <ul style="list-style-type: none"> – Nutrition – Physical activity – Tobacco use ■ Emotional and behavioral health measures <ul style="list-style-type: none"> – Stress – Depression
Long-Term	<ol style="list-style-type: none"> 9. Collaborate with other employers in the evaluation of health and wellness programs to contribute to the evidence base and advance effective implementation in the field

Overview of CEO Council Strategies for Improving the Health and Wellness of Individuals

CEO Council members are employing a range of strategies to improve the health and wellness of their employees and other beneficiaries. Many have rapidly expanded awareness of and participation in traditional health and wellness programs focused on nutrition and physical activity by engaging senior leadership, leveraging integrated online portals and interactive apps to track healthy behaviors, and using incentives and other rewards to promote participation. CEO Council members are also adding stress management programs to their portfolios, recognizing the impact that stress can have on health outcomes and productivity. A summary of CEO Council member strategies is provided below.

1. **Aetna** is improving the health and wellness of individuals through:

- A voluntary metabolic screening program and an evidence-based online program designed to reduce or reverse the risk factors associated with Metabolic Syndrome, demonstrating significant improvements in risk factors, stress levels, and work productivity
- Use of health-related mobile applications to empower consumers and make accessing health care and health information more convenient and personalized
- Innovative programs that use mindfulness and yoga to help the workforce manage stress, demonstrating reductions in stress levels and improvements in productivity

2. **Bank of America Corporation** has significantly exceeded national average employee-participation results in workplace wellness programs. More than 221,000 employees and spouses/partners completed 2014 wellness activities and more than 96,000 employees enrolled in the organization's 2013 physical activity challenge.

3. **Blue Cross and Blue Shield Companies** have designed a variety of strategies to increase engagement of individuals (both their own employees and those of their account customers) in their health and wellness, with positive results. Some proven strategies include:

- Combining participation-based and outcomes-based incentives, resulting in significant cost avoidance and improved health outcomes
- Providing personalized customer support to help ensure informed decision-making, resulting in considerable cost savings
- Embedding employee-engagement methods into health benefit product design, so that incentives for health and wellness are not a separate program but an integral part of coverage.

4. **McKinsey & Company** recognizes the importance of rooting strategy in deep knowledge of its employee population and making programs available that promote general health and wellness and respond to targeted cost and care needs.

5. **The Coca-Cola Company's** health and wellness strategy focuses on personalized support, social engagement, and shifting to a culture of well-being. Coca-Cola embraces the creativity of its employees to develop new, innovative approaches and embraces a culture change that begins with its leaders, who are role models.

6. **Verizon Communications** is engaging and empowering its employees by providing 100 percent preventive care coverage and easy access to healthy living information as well as interactive support tools and programs that help individuals manage their chronic conditions, with

positive results in both participation and health outcomes. Health screening program results are showing positive improvement in high blood pressure, cholesterol, and diabetes risk.

7. **The Walgreen Co.** is lowering the barriers to preventive care by offering vaccines and biometric screening free-of-charge to employees and encouraging preventive visits. Walgreens is also offering chronic condition management and wellness coaching. Walgreens' programs have resulted in reductions in health risk scores and considerable cost savings.

Improving the Health and Wellness of Individuals: Spotlight on Aetna

Overview

Aetna has been a leader in the insurance industry throughout the company's 160-year history. The company is still a leader today but is evolving from an insurance carrier to a health solutions company that helps empower people to live healthier lives and aims to improve the overall health care system. With more than 44 million members, and nearly 47,000 employees around the world, the company remains on the leading edge of innovation when it comes to the health of the American workforce, including its own.

Aetna uses a multifaceted approach to improving the health and wellness of individuals, including initiatives that focus on identifying and addressing Metabolic Syndrome, harnessing technology to empower consumers, and stress reduction.

Aetna's Strategies for Improving the Health and Wellness of Individuals

Identifying and Addressing Metabolic Syndrome

One of today's fastest growing health issues is known as Metabolic Syndrome, a grouping of five risk factors including large waist size, high blood pressure, high triglycerides, low HDL ("good") cholesterol, and high blood sugar. An adult with three or more of these risk factors is considered to have Metabolic Syndrome. An estimated one-third of American adults have Metabolic Syndrome, and many are unaware that they have it.²⁹ Those with it are twice as likely as those without it to develop cardiovascular disease and five times more likely to develop diabetes.³⁰

In addition, health care costs increase 25 percent with each added risk factor.³¹ The good news about Metabolic Syndrome is that lifestyle changes can reduce or eliminate the risk for these conditions.

Through a voluntary program, employees and spouses or partners can be screened annually at no cost. Those who test and are in a "desired" range for at least three of five risk factors each receive a \$300 annual medical plan premium credit. To help higher-risk employees address Metabolic Syndrome, Aetna recently introduced two technology-based programs designed to help.

Aetna offers employees a holistic program called *Metabolic Health in Small Bytes*, to which employees can self-refer. This evidence-based online program is designed to help reduce or reverse the risk factors associated with Metabolic Syndrome. Developed through a collaborative effort with Duke Diet and Fitness, Duke Integrative Medicine and eMindful, Small Bytes offers weekly or monthly classes conducted through a real-time, virtual, online classroom where participants can interact in real time with the instructor and each other.

In addition, Aetna offers its employees an interactive tool—a Metabolic Health Advisor called "ALEX®." A virtual host, ALEX is designed to motivate users to participate in the screening to increase identification of employees at risk, explain the results and give personalized feedback about the risk of Metabolic Syndrome, and encourage them to participate in lifestyle changes and Aetna intervention programs to reduce their risk.

Harnessing Technology to Empower Consumers

Mobile technology is a powerful tool to deliver more contextual and personalized health care and health information. Consumer use of these tools and information is driving changes in the way care is accessed and delivered and shows promise for bending the national cost curve as

well. Aetna's most popular health-related mobile application is Itriage®, which helps consumers choose health care providers. This decision support tool, founded by two emergency room physicians, is designed to help consumers answer two common medical questions: "What could be wrong?" and "Where can I go?"

Using iTriage, consumers can check symptoms; research treatment options, procedures, costs and complications; get information about medications; determine appropriate actions; locate and compare nearby care options; check in digitally, make appointments or phone calls, and get directions; and manage personal health records and information. A customizable employer enhancement helps users understand the cost implications of using in-network versus out-of-network providers, guiding users to the most clinically appropriate, lowest-cost care option. This feature increases in-network compliance and helps employers reduce costs while still providing employees with appropriate treatment options.

Stress Reduction

Stress can exacerbate or open the door to a range of health problems. Highly stressed individuals are at greater risk for multiple health conditions, including coronary heart disease, cancer, diabetes, depression and anxiety, fatigue, obesity and musculoskeletal pain. An international labor association estimates that 30 percent of all work-related disorders are due to stress, accounting for \$6.6 billion of losses in the United States alone.³²

To address this, Aetna piloted two innovative programs designed to help its own workforce manage stress. Both programs were developed in collaboration with Duke Integrative Medicine, eMindful, and the American Viniyoga Institute. Both were part of the "Mind-Body Stress Reduction in the Workplace" clinical trial, the results of which were published in the April 2012 edition of the *Journal of Occupational Health and Psychology*.³³ Based on

the success of the pilots, the programs are now offered to Aetna customers.

Mindfulness At Work™. This mind-body stress management program is based on the principles and practices of mindfulness meditation. Developed and offered by eMindful, the program teaches relatively brief (five to fifteen minutes) mindfulness practices that explicitly target work-related stress and work-life balance, and are specifically designed to be used at work.

Offered through an online, virtual classroom, the program teaches evidence-based mental skills, including mindfulness awareness, breathing techniques and emotions management. The program also helps participants discover and use their inner resources for bringing awareness, balance, and peace of mind to their lives. The goal is to improve mental performance, focus, and productivity, as well as enhanced quality of life.

Viniyoga Stress Reduction. This ten-week therapeutic yoga-based program was developed by American Viniyoga Institute founder Gary Kraftsow. Participants receive instruction for managing stress including physical yoga postures, breathing techniques, guided relaxation, and mental skills. The classes also provide coping strategies for dealing with stressful events and promote the use of home and office strategies for reducing stress through yoga. The program offers weekly in-person classes, home practice handouts, and yoga break handouts for home and office use.

Benefits and Impact

Identifying and Addressing Metabolic Syndrome. Aetna employees who participated in the Metabolic Health in Small Bytes program showed statistically significant improvements in all five risk factors, as shown in the following chart.

Test Results	% in Appropriate Range Before	% in Appropriate Range After
Triglycerides (Appropriate range less than 150 mg/dL)	74.0%	85.5%
High Blood Sugar (Glucose) (Appropriate range less than 100 mg/dL)	76.3%	84.7%
Low HDL ('good') cholesterol (Appropriate range more than or equal to 50 mg/dL for women and 40 mg/dL for men)	61.8%	76.3%
Blood pressure (Appropriate range lower than or equal to 130/85)	77.1%	93.9%
Waist Circumference (appropriate range less than or equal to 35 inches for women and 40 for men)	9.2%	21.4%
Body Mass Index (appropriate range lower than 30)	21.7%	28.3%

In addition, Aetna employees who participated in the program showed improvements in a number of other areas:

- **Greater Productivity.** The average number of minutes per week of lost productivity decreased from 61.2 to 21.6
- **Increased Physical Activity.** The number of participants performing at least 20 minutes of aerobic exercise at least three days per week increased 22.3 percent (from 47.7 percent to 69.9 percent).
- **Stress Reduction.** Participants reported statistically significant improvements such as being less upset in unexpected situations, being more in control of the important things in their lives, being better able to cope with all the things they needed to do, and feeling more “on top of things.”

Harnessing Technology to Empower Consumers

iTriage has been downloaded more than ten million times, with 50 million user sessions each year. The app is driving more appropriate and more efficient care: When iTriage users search for providers based on non-acute conditions, they select emergency departments 40 percent less

frequently. The app also boosts engagement and health literacy, which lowers costs: 63 percent of users search symptoms, 17 percent learn more about medications, 13 percent read news and alerts, and 53 percent review conditions and procedures.

This innovative electronic consumer tool improves employee engagement in their health; guides employees to the most appropriate level of care; encourages the use of more cost-effective, in-network providers; increases network compliance; and reduces unnecessary ER visits.

Stress Reduction

Participants in the “Mind-Body Stress Reduction in the Workplace” clinical trial, which looked at the impact of both mindfulness and Viniyoga, showed significant improvements in perceived stress with 36 and 33 percent decreases in stress levels respectively, compared with an 18 percent reduction for the control group as measured with the Perceived Stress Scale. Participants in the mind-body programs also saw significant improvements in various heart rate measurements, suggesting that their bodies were better able to manage stress.

To date more than 13,000 Aetna employees have participated in one or both programs. Since the pilot study showed statistically equivalent results for Mindfulness At Work participants who attended in-person sessions as well as those who accessed content through a virtual online classroom, the program is now offered online to all employees. The Mindfulness at Work program is helping participants gain an average of 62 minutes per week of productivity.

Lessons Learned

Identifying and Addressing Metabolic Syndrome

Getting employees to participate in the biometric screenings and then enroll in the program interventions, if appropriate, requires effective communication as well as incentives. Implementing a successful Metabolic Syndrome testing program requires a multi-year strategy to build a culture of health and well-being in your organization. Some of the high-level steps include:

- Understanding your employee demographics
- Establishing a wellness baseline
- Building employee awareness around the importance of screenings and health assessment completion
- Driving action and engagement in relevant tools and program resources
- Refining your strategy for optimal results.

Stress Reduction

It can be difficult to quantify the value of reducing stress. Aetna's pilot program found that among all individuals who were screened for the study, those reporting the highest stress level (top quintile) had nearly \$2,000 higher medical costs for the preceding year than those reporting the lowest stress level. Reducing stress can help reduce the risk for associated health conditions and points to the potential to help reduce overall health care costs.

Key Take-aways for Employers

Changing behavior is ultimately up to each individual. However, employers can make a big difference by helping their employees see the value of adopting healthier behaviors so they can live healthier lives.

The employer's workplace culture sets the tone for their employees. A supportive work environment, where managers reinforce the wellness strategy, can keep employees motivated and engaged. Support and commitment from senior management is critical to the success of the strategy. Senior management support also helps ensure that the resources needed to follow through effectively are obtained. One option is to have senior leaders play specific roles in announcing and reinforcing the strategy throughout the year. For example, senior managers can kick off the campaign or can be the first to have their onsite health screening.

"Stress can have a significant impact on physical and mental health, so there is a strong need for programs that help people reduce stress as part of achieving their best health. The results from the mind-body study provide evidence that these mind-body approaches can be an effective complement to conventional medicine and may help people improve their health, something that I have experienced personally."

*Mark Bertolini
Aetna Chairman, CEO and President*

Improving Health and Wellness of Individuals: Spotlight on Bank of America

Overview

Bank of America is one of the world's largest financial institutions. With more than 200,000 American employees, the bank believes that there is a strong connection between the personal and professional wellbeing of its employees and the satisfaction of its customers, clients, and shareholders.

The company's life management programs—such as flexible work arrangements, flexible schedules, supportive elder and child care family services, and paid time-away arrangements—demonstrate its commitment to helping employees effectively manage their family and work responsibilities.

In 2012, Bank of America expanded its focus on employee well-being by introducing wellness activities made up of two key components: a health screening that measures height, weight, blood pressure and waist circumference, and completion of a health risk assessment. To ensure employees had access to a health care professional for the health screening, the bank partnered with two of its health care partners—CVS/Caremark and Quest Diagnostics—to offer screening services at their respective facilities. Employees who opted for Quest's Patient Service Center could schedule an appointment at their convenience and there was no charge for the screening. Additionally, if an employee had been to his or her doctor in the prior 12 months, he or she could use information and testing results from that visit. The health assessment was available online through the bank's health plan partners and only took the

employee an average of 16 minutes to complete. A paper version of the assessment was available for employees who did not have access to the web.

Employees who completed the wellness activities received a health profile and a set of recommendations for actions to address healthy lifestyle issues or goals. Employees found to be at high risk for a health condition such as heart disease, diabetes, etc. received a proactive call from a "health case manager" from the bank's health care plan administrator. The health case manager offers personalized guidance to the employee on applicable medical, diet, exercise, and other interventions.

As an incentive to complete the wellness activities, Bank of America gave employees who enrolled a \$500 credit on annual health plan payroll contributions for 2013. The participation results were impressive: more than 162,000 employees completed the wellness activities within the five-month window after enrollment. And, more than 70,000 employees took action and engaged with a health coach or case manager for ongoing advice on making healthy choices and dealing with conditions.

As a direct result of the wellness assessment, the company identified some common health- and lifestyle-related concerns shared by its workforce. Employees were concerned about not getting enough physical activity during the week, making poor diet choices, and coping with stress.

Following the success of the wellness activities, in 2013 the bank further increased its wellness focus in two key areas—launching an activity-based program and expanding the wellness activities.

Taking Wellness Global

Bank of America's focus on wellness spans the globe. In the spring of 2014, the company piloted Get Active! with approximately 400 HR employees in the Asia Pacific region. The pilot provided valuable insight about employee perceptions of health and potential participation rates outside the United States.

The bank plans to launch Get Active! in other global regions to help all employees understand how simple steps for better health can add up—no matter where they live or work.

To complement its wellness activities and to respond directly to employee feedback about getting engaged in more physical activity, the bank introduced Get Active! in October 2013. This voluntary program uses team-based activity challenges to help employees improve their overall health. Employees use the program's website to log their steps or exercise minutes, view team standings, and show support for teammates. In the first eight-week challenge, participants could earn a reward by walking 56,000 steps/week, exercising 140 minutes/week, or tracking calorie intake.

A remarkable 96,000 employees enrolled in this challenge, forming more than 11,000 teams—surpassing any initial expectations. And, the participation was not limited to just the employee base. Senior leaders were active participants and program champions. Progress of top teams was highlighted at divisional town halls, managers led by example by wearing their pedometers, teams were talked up at department meetings, and there was an overall healthy spirit of competition, collaboration, and fun. Even

team names demonstrated the creativity and personalities of their members. Here are a few examples: Pedometer Monitors, Holy Walkamollies, CFO Cuts the Fat Out, Mission Slimpossible, Extreme BANKover: Weightloss Edition, The Young and the Rest of Us.

In the fall of 2013, CEO Brian Moynihan (who also participated in the challenge) announced that Bank of America employees had walked almost 21.5 billion steps; had lost close to 100,000 pounds and had exercised for about 1.4 million hours.

For Bank of America, proof of the success of Get Active! is in the stories that were reported via verbal anecdotes and written testimonials:

“Just wanted to share my joy and how thankful I am to Bank for opening a great way to lose that baby fat :-). This ‘Get Active’ program motivated me and helped me to lose 15 pounds (I was 174 and now I am 159 pounds). Hurray!! Now I feel more active...no knee pain or breathless and feel great...real rewards for being healthy.”

“It got me moving each day and realizing how much I missed exercising. This was the one event that I honestly can say has changed my attitude about fitness and I enjoyed every minute of it. I dropped five inches off of my waist and am walking a minimum of four miles each day. I feel the best I have in years!”

“Being 65, I was having a lot of pain in my knees. I have always been somewhat active, but never realize how 10,000 steps or more a day could play such an important part in my life. I even joined a Zumba class for additional exercise. My knees have improved tremendously. My office building has eight floors so I walk those steps every day—88 steps up and 88 steps down. I now look forward to walking the treadmill every day, and am averaging 35 minutes to an hour or more every day, and my steps are over 10,000 everyday.”

For 2014, the company's wellness activities increased in scope to include a total cholesterol test, in addition to the height, weight, blood pressure, and waist circumference measurements. The company also offered a \$500 credit toward annual health plan payroll contributions as an incentive for spouses and partners to complete the wellness activities. So, if an employee and his or her spouse or partner completed these activities, annual payroll contributions savings could total \$1,000. The response to completing these 2014 wellness activities has continued to be positive with a completion rate of 83 percent for employees and 80 percent of spouses and partners—a total of 221,000 people who gained valuable insight into the status of their overall health.

As a way to help employees and their family members “do something” about what they have learned from the wellness

activities, Get Active! was rolled out to employees and adult family members in April 2014. The company will expand program features in the future to include challenges that will award charitable donations for pounds lost, steps walked, etc.

Lessons Learned

Building programs around the identified needs of employees is an important foundational step. Employees want to get and stay healthy and are willing to take advantage of programs at work that help them do this. Incentives help, and champions and role models at the top are important. Engagement requires both old-fashioned face-to-face and written communication, as well as the effective use of new technology.

Key Take-aways for Other Employers

Employee health and wellness programs work well when there is visible and ongoing support from leadership and access to knowledgeable resources for guidance and motivation. Knowing and responding to the expressed needs and concerns of the workforce is the first and most important step in building a successful program.

Improving Health and Wellness of Individuals: Spotlight on Blue Cross and Blue Shield Companies

Overview

Blue Cross and Blue Shield companies are industry leaders in delivering products and programs that simultaneously leverage national access and local support. The companies provide health care coverage to nearly 104 million members across all 50 states, Washington, D.C. and Puerto Rico, with corporate customers ranging from the smallest of small businesses to 76 percent of the Fortune 500. As such, the Blues' reach in improving the health and wellness of individuals extends not only to the more than 150,000 Blue Cross and Blue Shield employees, but also to the tens of millions of employees who work for companies that offer employer-sponsored coverage from Blue Cross and Blue Shield.

The Blues' broad and deep experience confirms that, although nearly everyone today knows the importance and the value of healthy habits, making the leap from "knowing" to "doing" can be hard. Wellness programs designed to engage employees in healthier habits increasingly include behavior-based incentives and personalized programs and services. According to one study, 86 percent of employer groups reported offering incentives in 2013, up from 73 percent in 2011.³⁴ While financial rewards can encourage initial participation in activities such as health assessments, they are generally more effective when tied to outcomes and/or included within the context of a broader employee wellness and engagement strategy. Non-financial incentives include tailored outreach and customer service approaches to reach, inform, and engage consumers about health care issues that matter most to them. And, in addition to

engaging consumers through discrete incentives programs, health insurance benefit design itself can be an effective means to engage consumers.

Blue Cross Blue Shield Strategies for Improving Health and Wellness of Individuals

As a national association of independent, locally operated Blue Cross and Blue Shield Plans, BCBSA works to gather insights and share lessons throughout the Blue System so that best practices can be expanded and replicated with other Plans to benefit thousands more customers and millions of additional members. The following examples represent just a few of the hundreds of programs Blue Plans have in place to engage consumers.

Combining Participation-based and Outcomes-based Incentives

Increasingly, incentive programs are not just rewarding employees for participating; they are rewarding employees for reaching measureable health goals or improvements. Working with a Blue Plan, one employer group offered its employees an opportunity to pay lower premiums through a combined participation-based and results-based healthy incentive program. Employees were rewarded with a reduction in their premium for completing an online health assessment or any of four biometric screenings and then meeting certain health improvement targets.

Providing High-Touch Customer Service to Encourage Informed Decisions

Consumers are best able to make informed health care decisions when they receive appropriate, understandable, and timely information about the quality and cost of care. One Blue Cross and Blue Shield Plan's health concierge service enables members to maximize their health benefits and effectively plan their health care by taking advantage

of expanded telephone support for more than 150 non-emergency procedures. The Plan's dedicated customer service agents help the member understand benefits, find a provider, estimate costs and receive any necessary pre-certification for a treatment or procedure. Although this information can be found online, the Plan and participating employers concluded that consumers derive value from personal interaction.

Engaging Consumers in the Context of Broader Innovations in Benefit Design

Blue Plans also have begun embedding engagement methods into their products' basic benefit designs. For example, as part of the benefit design that one Blue Cross and Blue Shield Plan offers to employers, members can choose among three levels of products, whose cost-sharing component varies depending on the level of engagement they agree to. Specifically, members' out-of-pocket expenses are directly tied to the decisions they make—including the physicians they choose, their participation in wellness programs and their compliance with prescribed care plans.

Benefits and Impact

As a result of the incentive program, the employer group estimated avoided claim costs of \$1.8 million after just two years of the program (\$3,000 per person per year). This cost avoidance is tied to improvements in clinical outcomes, including reducing by half the share of employees with hypertension (from 54 percent in Year 1 to 25 percent in Year 2). The enhanced telephone support program included approximately 500,000 participating members in 2012, and resulted in more than \$2,000 in average savings per claim when the member opted to seek treatment from a lower-cost provider. As a result, the Blue Plan is expanding both the scope and scale of the program in 2014.

Lessons Learned

By an almost two-to-one margin, employers cite lack of employee engagement as the largest challenge related to changing employees' behavior concerning their health. According to a 2012 survey conducted by the National Business Group on Health and TowersWatson, employee engagement ranked No. 1, with 57 percent of reporting companies citing this as the biggest obstacle.³⁵

Better health is an individual journey and employees need solutions that recognize and fit their individual needs. Employers are implementing programs that use behavioral economics, claims, and prescription data to create personal programs and outreach for the individual.

Key Take-aways for Employers

Incentives are helpful but will not sustain engagement without programs and tools that connect with individuals. Educational and support tools can make individuals feel more empowered to make needed health and lifestyle changes, reaping both the program rewards for these changes and better health outcomes. Moreover, to be successful, the information and programs offered must be personalized to resonate with individuals; they need to be designed—and perceived—to meet individuals' needs. As such, programs must be tailored to each employer's workforce and their specific health and wellness needs. One size will not fit all.

Improving Health and Wellness of Individuals: Spotlight on McKinsey & Company

Overview

McKinsey & Company's mission is twofold: to help its clients achieve distinctive, lasting, and substantial improvements in their performance, and to build a great firm that attracts, develops, excites, and retains exceptional people. McKinsey measures its success as a firm against these two elements. It cares about helping its people be healthy and well, to enable them to both better serve clients and develop to their full potential professionally and personally.

A highly successful global management consulting firm that serves businesses, governments, and institutions around the world, McKinsey is known for its hard-working consultants who are passionate about problem-solving. The McKinsey workforce is relatively young, with an average age of about 35. More than 80 percent of the staff is under 40. The good news is that this workforce has much lower levels of obesity, diabetes, heart disease, and other chronic conditions than many other corporations must deal with. But most McKinsey consultants (including the many with young families) travel a lot and work long hours. These factors can affect their health and work-life balance. The firm places a very high value on the health and wellness of its workforce, and believes that supporting employees' health helps them lead more fulfilling and productive lives, stay energized and focused on client needs, and deliver the best results for clients. Helping employees achieve better balance in their lives is not just good for the employees; it's good for the firm as well.

McKinsey's Strategies for Improving the Health and Wellness of Individuals

McKinsey targets its primary wellness efforts to the specific needs of its workforce. Although its 104 offices around the world offer employees conventional preventive health and wellness programs (e.g., flu shots, sponsored exercise events, in-office gyms or discounted gym memberships), the firm's focus is on helping employees achieve a better work-life balance. It has developed a number of innovative programs to achieve this goal:

Flexibility Options

McKinsey employees can take advantage of several alternative working models that change the typical full-time work schedule to reduce stress and improve work-life balance. These include:

- **“Take Time”:** This program enables employees to take an extended block of time off between projects—in addition to their regular vacation time—to pursue personal interests. This leave is unpaid, but employees continue to receive benefits. Many employees take advantage of the program to spend the time with loved ones, participate in community service, or dedicate time to hobbies.
- **Part-Time Roles:** Employees can work 60 to 80 percent of full time by working three to four days per week, or by taking longer time off between projects. This can be either a permanent part-time role or can be a ramp-up period for people returning from a maternity or other leave.
- **Leaves of Absence:** Leaves are available for up to one year, and can be used to extend maternity leave or meet other family or personal commitments. The leave is unpaid but employees continue to receive benefits for up to six months.

■ **Support for Different Roles:** McKinsey is increasingly working with its consultants to help them create “their own McKinsey” by playing to their strengths, and exploring the diversity of experiences the global firm has to offer.

- This may involve transitions between traditional consulting and other types of roles. Some consultants switch “tracks” to achieve a different work-life balance, while others do so to pursue particular interests, for example, those related to knowledge or people development
- Many types of roles are available that differ from the traditional, generalist consultant role, including client-facing expert roles, internal knowledge development roles, and practice management roles. Recruiting and people development/training roles are also available.
- Consultants have the opportunity to switch into many of these roles either for a specified period of time (e.g., six to twelve months) or as a semi-permanent or permanent career trajectory shift.

Strengths-based Teams

McKinsey has implemented several phases of a program called “The Way We Work” that encourages better work-life balance, stress reduction, and other aspects of health and wellness. These guidelines call for:

■ **Team Learning:** At the beginning of each engagement with a client, consultants have a “Team Learning” session at which they discuss not only topics related to the client situation, but also their professional development and lifestyle goals, to ensure the project is set up to run successfully. The session includes a discussion of all team members’ lifestyle constraints (e.g., time constraints due to family, need for exercise, planned vacations, etc.)

■ **Team Norms:** Each team also establishes “Team Norms,” guidelines that will govern how the team works together for the course of the engagement, including how the schedule will accommodate each team member’s work-life balance requirements, how the team will make time for healthy meals and exercise, etc. Each team member is responsible for ensuring that the team adheres to these norms over the course of the engagement and is evaluated on this at the end of the engagement.

■ **TeamTalks:** Based on research into inspiring team experiences these 30- to 45-minute team discussions, held every two to three weeks, focus on team dynamics and ways the team can make its work more inspiring for each other and for the client.

Tailored, Tested Benefit Programs

McKinsey considers the needs of its workforce a primary driver for employee benefit strategy. Programs and features are often initially piloted with key populations and/or locations. For example:

■ **Caring for New Families:** This comprehensive, voluntary maternity support program is designed to assist participants who are pregnant or considering pregnancy. Its goal is to help expectant mothers stay healthy during pregnancy. The program provides topical educational materials (about nutrition, breastfeeding, gestational diabetes, etc.) and puts the women in touch with a nurse specialist who can address any concerns they may have during the pregnancy.

Upon enrollment, pregnant members undergo an initial assessment to identify possible health risks. Based on this assessment, targeted prenatal education and support is provided. Employees who enroll and complete the program are eligible to receive reimbursement of up to

\$300 for certain pregnancy-related services/products not ordinarily covered under the firm's medical plan (e.g., lactation counseling, Lamaze classes, breast pumps, and nursing shields and gels). To be eligible for reimbursement, participants must have completed the program and submit the completion letter provided.

- **Financial Wellness:** McKinsey provides voluntary access to financial education services in an effort to support healthy financial wellbeing amongst its population. This free service is available online and also by phone. The phone option consists of a helpline staffed with Certified Financial Planners. The online portal offers a self-guided, customized assessment with follow up guidance and alerts.
- **Stress Management:** McKinsey uses a variety of more conventional approaches to stress management, including regional ombudsmen, coaching programs, and employee peer networks (e.g., women's groups or other cohort groups).

Benefits and Impact

McKinsey's flexibility options and work guidelines are gaining in popularity among its workforce. Currently, about 13 percent of consultants take advantage of flexibility options. The Take Time program, introduced globally in 2012, quickly became the most popular flexible working model, doubling overall participation in flexible programs. Over that same time period, a consultant survey showed a 16-point increase in the percentage who agreed that the firm is committed to flexibility. A survey of participating teams in Europe and the United States showed that, after implementing Strengths-based Teams initiatives, consultant time spent on non-value adding activities (such as travel)

and time spent on individual work each fell by seven percentage points. Next-generation Strengths-based Teams initiatives, including TeamTalks, have led to an improved team experience across all eight of the client-engagement dimensions self-reported by teams.

Lessons Learned

The return on investments in employee wellness programs remains a source of discussion and debate in most corporations. Many believe the ROI is unknown or unknowable. McKinsey believes that for its programs to attract and support employees and provide an ROI for any organization, their design must be based on a deep understanding of the employee population's specific health needs and a deep understanding of what motivates the workforce. McKinsey's relatively youthful workforce has responded well to the programs aimed at helping them achieve better work-life balance. Says one McKinsey consultant, "It was a good idea to introduce 'Take Time' to allow consultants to spend more time with their families and friends." Another agrees: "'Take Time' has been critical to my satisfaction."

Key Take-aways for Other Employers

The key lessons to learn from McKinsey's employee wellness programs are not the specifics of the programs, but rather the need to tailor wellness programs to a workforce's specific health needs. By understanding an employee population's needs—through surveys, focus groups, analysis of claims data, etc.—employers can better design health and wellness programs that target those needs. It is also important to understand what rewards will motivate employees.

Improving the Health and Wellness of Individuals: Spotlight on The Coca-Cola Company

Overview

It is hard to imagine even a remote corner of the world where the Coca-Cola logo isn't recognized today. The world's largest beverage company, The Coca-Cola Company has close to 150,000 employees globally and more than 750,000 when the franchise system is included. In the United States alone, The Coca-Cola Company provides health care to more than 125,000 associates, family members, and retirees.

The Coca-Cola Company's Strategies for Improving the Health and Wellness of Individuals

The company's well-being strategy focuses on the whole person with efforts to support physical, emotional, financial and social well-being. More than programs, the strategy focuses on building a well-being culture that encourages and supports employees in their efforts to be balanced, be happy, be together with friends and family, and be prosperous. Coca-Cola feels that employees who bring their best energy to the workplace are more creative and productive, which is a win for the employee and a win for the business. It is also critical for the company to align its internal associate strategy with its external active, healthy lifestyle programs around the world.

To support the well-being of employees, the company concentrates its strategy in four core areas:

- 1. Offering Personalized Support:** Personalized support services help associates address individual needs, overcome barriers, and meet their goals—whether it's taking that first small step, running their first 10K, or keeping various risk factors under control.
- 2. Enabling Social Engagement:** Social-engagement opportunities make well-being an ongoing part of an associate's work and life through peer connections, learning, challenges, recognition, and being a brand ambassador.
- 3. Making Well-Being Accessible:** Information, resources, and tools to support well-being are made available virtually and on-locations to make it easier for employees to find the help and support they need.
- 4. Shifting to a Culture of Well-Being:** Starting with leaders as well-being role models and empowering associates globally helps integrate well-being into the work and lives of associates, their families, and the communities in which they live.

The Coca-Cola Company offers a comprehensive benefits package designed to promote well-being for its employees. In addition to comprehensive health care, the company provides an onsite gym and medical center at its headquarters campus, discounted gym memberships across the United States, well-being coaching, and disease management programs. To support financial well-being, the company provides free financial planning services in the United States. In addition, over the next few months the company is launching an employee assistance program (already in the United States) in more than 100 countries.

The company offers employees Virgin HealthMiles (now Virgin Pulse), a comprehensive and customizable health and well-being platform, to help them assess, plan, organize, and track their health and well-being activities.

To help motivate employees, the company provides health care premium reduction incentives to be active, participate in challenges, complete a well-being assessment, get biometrics screenings, and participate in well-being coaching programs. Following are some examples of how the company supports employee well-being across the four pillars:

Engaging Employees in the Development of New, Innovative Strategies

Well-being programs are not just company-led initiatives, but rather are ignited by the passion of employees. To help bring this passion to life, the company has appointed well-being champions in all major workplace locations as well as for its global functions. These champions help to activate well-being locally. In addition to champions, the company recently held a three-day “Start-Up Weekend” event where more than 50 employees came together to brainstorm, develop, and pitch new ideas for employee well-being programs. Divided into teams, each group created a business plan around their idea and “pitched” the program to the rest of the group. At the end of the process, each team was assigned an executive mentor to help further develop, accelerate, and execute the programs. Some of the strategies that emerged and are being developed for implementation include:

“Fit Mob”

A Fit Mob is like a flash mob: a spontaneous, short-term convergence of energetic people who come together to exercise. When a Fit Mob breaks out at a company facility, text messages invite employees to join in for ten to 15 minutes of zumba, Tai Chi, or other movement-related activity.

“Coke Music Moment”

Recognizing that music has been shown to reduce stress and blood pressure, Coke Music Moment is a weekly

program in which employees can connect with each other and refresh while listening to musical performances (often by fellow colleagues).

Walk with a Leader

As simple as the name sounds, Walk with a Leader is a weekly lunchtime walk led by a rotating set of leaders. The walks encourage people to get up and be active while providing an opportunity to connect with Coca-Cola leaders outside of the typical work environment.

Financial Planning

Coca-Cola offers free financial planning services in the United States. This is particularly helpful with the shift toward higher-deductible health plans, encouraging employees to think about how to create a health care strategy over their lifetimes.

Making Activity Fun And Social

In the first part of 2014, the company held its first global physical activity challenge that was done in coordination with Coca-Cola’s sponsorship of the FIFA World Cup. Employees competed in the Go for the Employee Cup challenge by playing a series of soccer (football) matches in more than 50 countries. A winner from the top teams from each country was randomly drawn to take part in a VIP Experience at the 2014 World Cup in Brazil.

Benefits and Impact

The Coca-Cola Company uses a range of measures, including the following, to evaluate the positive impact of its programs on both employees and the company:

- **Population Health Risk:** The company measures the degree to which employees move from high-risk/chronic conditions into lower-risk categories that help the employee and reduce health care costs.

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- **Employee Engagement:** The employee insights survey includes a focus on well-being. There is a direct link between employee engagement and business performance.
 - **Innovation:** Well-being activities play a critical role in bringing disparate employee groups together. These interconnections are important catalysts for innovation and creativity which the company both encourages and monitors.

Lessons Learned

Employees lead busy lives, and The Coca-Cola Company uses a triple-faceted approach to engage them in well-being activities: education (providing them with useful, relevant, accessible information); facilitation (creating programs, physical space, and supportive policies); and motivation (incentives to help them begin the process of creating healthy habits). Too often well-being programs stop at education and/or facilitation, but The Coca-Cola Company understands that motivation—through incentives, culture,

and peer support—drives sustainable behavior change and long-term improvements in well-being.

Key Take-aways for Other Employers

Driving productivity through well-being requires more than just a program. It requires a comprehensive culture change that weaves health and well-being goals tightly together with business goals. Without that tight connection, well-being becomes separate from the work, a low priority, or a focus “only when my work is done.”

It is also important that health and well-being start at the top—with leaders who are role models and who visibly demonstrate well-being behaviors and actively support the well-being of their team members. Whether it is holding a walking meeting, taking time to ask about an employee's own well-being, or celebrating when someone reaches their well-being goal, it needs to be visible, authentic, and in Coke parlance, real.

Improving Health and Wellness of Individuals: Spotlight on Verizon Communications

Overview

The culture of health that continues to unfold across Verizon's large and widespread workforce is the result of a strategic initiative designed to improve health and control costs for the company's more than 700,000 employees, retirees, and dependents. The company's comprehensive approach to health and wellness effectively combines benefits, incentives, support, and health services to help employees more easily access the right care at the right time in the right location. Results show that the strategy is working.

In addition to providing comprehensive health benefits (on which the company spent nearly \$3.2 billion in 2013), Verizon's strategy involves engaging and empowering employees, retirees, and their families to proactively manage and improve their health. The strategy emphasizes preventive care and early detection, condition management, maternity care management, and promoting healthy lifestyles with a focus on healthy eating, exercise, tobacco cessation, emotional health, and work/life balance. Forty-five onsite Verizon Health and Wellness Centers, staffed by trained professionals who are Verizon employees, promote the importance of healthy lifestyle habits through physical activity, nutrition counseling seminars, and more.

Verizon's Strategies for Improving the Health and Wellness of Individuals

An overview of some of Verizon's strategies for improving health and wellness is provided below.

Ready Access to Online Healthy Living Information and Interactive Support Tools

In 2012, Verizon significantly expanded online access to healthy living information with a new one-stop health and wellness portal called *WellConnect*, which provides access to all Verizon wellness programs, as well as personalized health information, online tools, mobile apps, a video library, and healthy living tips to help individuals eat well, stay active, and maintain a balanced lifestyle.

Additionally, Verizon regularly presents webinars for employees on a broad variety of topics such as asthma, diabetes, men's health, *Know Your Numbers*, and prenatal care.

Easy Access to Preventive Care

Verizon offers no-cost biometric health screenings, such as cholesterol and blood sugar tests, along with height, weight, blood pressure, and body mass index (BMI) screenings. During 2013, these services were offered at more than 90 Verizon locations, 2,000 laboratory patient service centers, and through personal physicians. Breast health informational sessions and mammography screenings were also offered at 21 work locations and more than 600 women took advantage of the on-site screenings in 2013. More than 20,000 employees received flu shots on-site, a positive increase of 8 percent.

Management of Chronic Conditions, Such as Diabetes

Verizon has teamed with Anthem Blue Cross Blue Shield and Express Scripts to conduct outreach campaigns to help those with diabetes manage their conditions by encouraging preventive care tests (such as Hemoglobin A1c tests, dilated eye exams, as well as microalbumin, cholesterol, and blood pressure screenings) and medication adherence. Verizon uses national benchmarks to measure progress and designs new interventions to help employees manage key diabetes management goals.

Benefits and Impact

Verizon's strategies are paying off. Verizon has studied the results of a group of 1,700 employees who were screened in 2012 and 28 percent of those who had out-of-range blood pressure the previous year had moved to in-range. Colon cancer screenings are improving as 47 percent of employees and dependents in the age-appropriate population were screened in 2013, approaching national benchmarks. Breast cancer screenings continue to improve and meet national benchmarks at 67 percent. In 2013, the Healthy Pregnancy Program deliveries accounted for 30 percent of all Verizon babies delivered, a 3 percent increase in participation over 2012. The Healthy Pregnancy Program helps participants safely deliver healthy children by providing maternity risk assessments, health education, and proactive benefits management. The program also helps to ensure the mother's well-being with post-partum depression screenings.

Lessons Learned

Verizon's workforce is geographically dispersed across 49 states, and scaling programs to cover hundreds of locations can be difficult. Also, Verizon employs a number of shift workers and a large number of employees who work independently. Both can create challenges with widespread adoption.

To overcome these challenges, Verizon launched a new online portal in November 2012 to provide an easily accessible, one-stop gateway for health and wellness resources. To drive traffic to the site, the company implemented a "push/pull" communications strategy, including a "Wellness Now" e-magazine. With the launch of the e-magazine, web page views increased nearly five-fold in only one month's time.

Verizon also launched a "consumerism campaign" designed to highlight cost savings opportunities in areas such as low-intensity emergency room and radiology use, influence health care decision-making through decision support tools, and promote accountability using "straight talk" about the cost of health care services. The use of incentives for healthy behaviors, like completing a health assessment to raise awareness of risk and actions to address those risks as well as not smoking, is key to achieving and sustaining those behaviors.

In addition, Verizon utilizes "engagement champions" across work locations to raise awareness of onsite screenings, vaccinations, and physical activity initiatives.

Key Take-aways for Other Employers

Verizon's health and wellness strategy is focused on prevention and healthy lifestyles, data-driven decision-making, and measuring success. De-identified claims data provides a good indication of how to prioritize programs and initiatives; communications and participation data along with employee feedback help determine interest, what's working, and what's not working; and de-identified outcomes data helps leaders understand lasting behavior change. Raising awareness through consumer tools and messaging helps employees understand the mutual advantage of using health care benefits and resources wisely. Verizon continuously innovates so that as market resources like online and mobile health tools change and grow, the company keeps its programs fresh and engaging.

Improving Health and Wellness Of Individuals: Spotlight on Walgreen Co.

Overview

Walgreens' purpose is to help people "Get, Stay, and Live Well." This is the cornerstone of how the company works with customers in every community where its pharmacies or other services are located. It is also how the company engages its more than 250,000 employees, known as team members, and retirees.

The company offers its team members a wide variety of programs designed to support a healthy lifestyle both at work and at home. That effort begins with comprehensive health benefits, supported by a wellness strategy that provides prevention, intervention, and engagement programs designed to improve overall health and wellness. The comprehensive prevention program includes initiatives such as *Well Informed*, an incentive-based program focused on helping participants understand their overall health status through a health risk questionnaire, measure their biometrics, and engage in healthy activities with rewards throughout the year. Other programs include an employee assistance program called *Work & Life Resources*, weight loss discounts, on-site clinics, a zero copay program, tobacco cessation support, and fitness discounts.

The company also offers programs that provide direct health management and advocacy or intervention efforts. These programs consist of condition and utilization management, advocacy support, coaching, and other clinically focused programs through various partners. Walgreens works hard to foster engagement among its employees, striving to achieve its goal of 100 percent engagement across the workforce. An overview of some of Walgreens' health and wellness strategies is provided below.

Walgreens' Strategies for Improving the Health and Wellness of Individuals

Simplified Access to our Well Informed Program

In 2013, Walgreens enhanced its *Well Informed* program to promote access through any mobile or stationary device. The program now consists of a simplified 22-question Health Risk Questionnaire (HRQ) easily accessed through any device. Once the HRQ and biometrics are complete, benefits-enrolled team members and their covered spouse/domestic partner receive funding into a health reimbursement account (HRA) they can use to offset deductibles and copays. The program also engages team members throughout the year through a focus on healthy activities. Many types of health-focused accomplishments are rewarded through Walgreens' *Balance® Rewards* loyalty program in three periods annually up to an equivalent points value of \$150 for each covered couple. The program also includes discounts on a variety of weight loss programs, tobacco cessation support (including free NRT and Chantix®), and the company's value-based benefit called the *Zero Copay* program.

Walgreens is also developing an online series of health-related topics available through Walgreens University, the company's comprehensive employee learning platform.

Preventive Care Whenever and Wherever

Walgreens offers team members flu vaccines, biometric testing, and travel immunizations at no cost at its more than 8,500 pharmacies and health care clinics, as well as two on-site Healthy Living Centers. In 2012, Walgreens provided more than 100,000 flu vaccines to team members and their dependents.

Chronic Condition Management and Wellness Coaching

Through partnerships with OptumHealth and Alere, Walgreens offers a holistic approach to wellness and condition management coaching. The program engages team members and their families wherever they are on their wellness journey. The program supports care for conditions such as diabetes, cardiac abnormalities, and obesity, offers tobacco cessation options, as well as assistance or coaching for any wellness-related concerns.

Benefits and Impact

Walgreens' strategies are effective. The company's comprehensive health care data warehouse enables analysts to compare the health risk of those who participate in wellness programs with the health risk of those who do not. The data show that those who participate in any wellness program are able to improve their health risk score by 15-20 percent more than those who do not participate.

In addition, as noted in the *Journal of Managed Care Pharmacy*, the *Zero Copay* program shows a four-to-one return on investment.³⁶ The company has also demonstrated that those team members with access to on-site and in-store health clinics save the benefit plan nearly 2.5-to-one in cost over those with access who use other health care providers.

Lessons Learned

Walgreens' workforce is geographically dispersed across all 50 states, the District of Columbia, and Puerto Rico. Scaling programs to cover thousands of large and small locations, as well as a broadly diverse workforce, is challenging.

To address some of these challenges, Walgreens leverages online tools and resources as well as communication through management. In 2014, Walgreens will also promote wellness champions and enable sites to receive recognition as a "Well Informed Spot" for their efforts to bring wellness to their location. Each participating site will increase its rewards opportunities and incentives.

Key Take-aways for Other Employers

While many of Walgreens' wellness solutions exist for those covered by company benefit plans, the company also drives the wellness message to those who do not elect or are not eligible for Walgreens health coverage. Team members in these situations can still participate in the *Well Informed* programs health activities for *Balance® Rewards* points, and the tobacco cessation support.



Health Program

Health Innovation Initiative



Chapter 2: Improving the Health of Communities

Overview and Benefits

The U.S. business community competes in an ever-changing global economy. A growing number of business leaders now believe that workforce health is a competitive asset that affects employer operating costs and shareholder earnings. Rising health care costs, uneven quality of care, and declining health status of the American population have the potential to put U.S. companies at a competitive disadvantage in an increasingly global market.

Medical care is just one determinant of the population's health status.³⁷ Other factors, such as individual behaviors, genetics, and social and environmental factors also play significant roles. An increasing number of employers understand that creating healthier places to live, learn, work, and play can have a significant positive impact on the health of communities.

Addressing preventable health risk factors associated with chronic disease—through employer involvement in community-based initiatives—can positively impact health outcomes, yielding encouraging returns in both cost and quality. Chronic conditions affect almost 50 percent of Americans and account for seven of the ten leading causes of death in the United States.^{38,39} Preventable health risk factors, such as insufficient physical activity, poor nutrition, and tobacco use contribute significantly to the development of and severity of chronic diseases.⁴⁰

What Makes Us Healthy



What We Spend On Being Healthy



Source: "Lots to Lose: How America's Health and Obesity Crisis Threatens our Economic Future," *Bipartisan Policy Center*, 2012.

Investing in healthy communities makes business sense for employers because it:⁴¹

1. Improves the health status, and therefore the productivity, of their current and future workforce
2. Improves economic development of the community
3. Reduces direct health care costs, costs due to loss of productivity, and wage replacement costs
4. Attracts workforce talent to the community, assisting with recruitment and retention
5. Strengthens brand, goodwill, and recognition of leadership within the community
6. Lays the groundwork for collaboration, cooperation, and community-based problem solving for many other issues affecting the business community, such as economic development and education.

Common Challenges and Key Imperatives

One of the most common challenges employers face when they invest in communities is assuring that they achieve maximum reach and impact. People who need the most help are often the hardest to reach. Employers can increase the effectiveness of their community-based efforts by partnering with local, community-based organizations that already have established relationships with target populations, such as schools, park authorities, public health departments, community-based organizations, and provider institutions. Teaming with other employers in the community through local business coalitions (where they exist) as well as local health plans—both of which share a common interest in improving the health of the community—can further maximize impact. Also, recognizing that each community is different is critically important to success. Implementing a national, one-size-fits all approach is not as effective as customizing programs to each community's unique needs. Finally, improvement can be difficult without measurement. A number of public and private efforts have begun to measure the health of cities, counties, and states to bring actionable data for improvement to communities across the nation. Employers can also utilize these metrics to identify opportunities and target investments for improvement.

Menu of Employer Actions

The following is a menu of possible actions employers could take to improve the health of communities.

Immediate-Term	<ol style="list-style-type: none"> 1. Understand the health of communities in which you have employees by reviewing metrics already being captured in the following areas: <ol style="list-style-type: none"> a. Health behaviors, with a focus on: <ul style="list-style-type: none"> ■ Physical activity, nutrition, and obesity, for both adults and children ■ Tobacco use b. Clinical care and health outcomes, with a focus on: <ul style="list-style-type: none"> ■ Access to care, including the percentage of uninsured and access to primary care ■ Preventive services, including the percentage of adults and children who have received appropriate immunizations and the percentage of adults, as applicable, who have received appropriate diabetic, blood pressure, and mammography screenings ■ Prevalence of chronic disease, including percentage of individuals with diabetes, heart disease, and cancer c. Social and economic factors, which have been shown to improve the health of individuals and communities with a focus on education, housing, access to nutritious foods and beverages, and childhood poverty
Near-Term	<ol style="list-style-type: none"> 2. Commit to and develop plans for improving the health of communities in which you have employees and/or serve, working in collaboration with local public- and private-sector leaders, and focusing on one or more of the above-identified areas 3. Join forces with other employers to establish national goals for community health improvement focusing at a minimum on the above-identified areas
Long-Term	<ol style="list-style-type: none"> 4. Collaborate with local public- and private-sector leaders, including schools, to support and implement programs that will improve health in at least one community, focusing on one or more of the above-identified areas 5. Build community health into decision-making regarding selection of new sites for expansion

Overview of CEO Council Member Strategies

Strategies that CEO Council members are employing to improve the health of communities include investing in child health and education; increasing access to care for the underserved through the use of technology; expanding availability of physical fitness and nutrition programs; and improving immunization rates. A summary of CEO Council member strategies is provided below.

- 1. Blue Cross and Blue Shield Companies** invest heavily in improving the health of the communities each Plan serves, providing much needed financial and human resources, along with industry expertise, to help improve local health and wellness. As locally operated health plans, the Blues forge relationships with strategic partners at the local level to provide life-changing health interventions (e.g., for conditions such as childhood obesity and diabetes), support a culture of volunteerism and civic entrepreneurship among employees, target philanthropy toward programs that demonstrate clear and tangible outcomes, and invest in developing the primary care workforce of tomorrow.
- 2. The Coca-Cola Company** is investing in physical fitness programs and nutrition education programs that target both adults and youth in communities across the United States and the world. It is also supporting efforts to engage physicians, nurses, dieticians, and other health professionals in promoting exercise and wellness, raising awareness of the importance of healthy energy balance, assuring that disadvantaged youth have access to sporting equipment, and educating young people on the importance of physical activity and good nutrition.
- 3. Verizon Communications** innovatively applies technology to address some of the most important social issues by deploying technology-enabled, mobile health clinics to connect children to quality health care, leveraging technology to improve chronic disease management among underserved women, and using remote monitoring tools to enable underserved seniors with chronic conditions to age in place longer.
- 4. The Walgreen Co.** is rapidly expanding immunization rates through a multifaceted strategy that involves engaging with the federal and state public health community, investing in solutions that increase access to coverage, expanding accessibility to all CDC-recommended vaccines, and raising awareness among individuals about the importance of immunization. Walgreens is also increasing access to care through convenient health care clinics to support both preventive care and chronic condition management. Technology helps Walgreens health care clinics support better care and coordination with health plans, primary care providers, and other health system partners.

Improving the Health of Communities: Spotlight on Blue Cross and Blue Shield Companies

Overview

Investing in the communities they serve—and partnering across sectors and industries—enhances the ability of businesses to tackle the largest health issues facing the nation. The most successful programs are focused ones that use measurable results and community impact to guide investment strategy. As a national association of independent, community-based and locally-operated Blue Cross and Blue Shield Plans, BCBSA collaborates closely with its 37 Plans in all 50 states, Washington, D.C. and Puerto Rico to maximize the local impact of community engagements—totaling \$356 million in community investments in 2012—and align around issues with national implications. This structured approach to giving has allowed the Blues to deepen partnerships on public health interventions, volunteering, and philanthropy that include evidence-based programming, plans that engage all relevant stakeholders and an emphasis on evaluation.

Blue Cross Blue Shield Strategies for Improving the Health of Communities

Partnering on Life-Changing Public Health Interventions

Blue Cross and Blue Shield Plans all across the country are deeply involved in community efforts focused on high-priority public health problems. One such problem is childhood obesity, a nationwide epidemic targeted by several Blue Plans. One Blue Plan, in collaboration with a local public/private partnership, developed an initiative that

works to create healthier environments in the child care setting to help instill a lifetime of healthy behaviors. The program empowers child care providers to teach young children and their parents about healthy nutrition and physical activity practices. It is the first statewide initiative to combine multiple successful strategies and implement both a top-down and bottom-up approach to improve the health of children in child care, their families and their communities.

Partnering to Create an Environment in Which to Establish Healthy Habits

With the participation of local Blue Cross and Blue Shield Plans, BCBSA provided exclusive national sponsorship of the Partnership for a Healthier America's Play Streets program in 2013. Play Streets established temporary physical spaces for children, families and communities to be physically active in ten cities across the country. Doing so encouraged economic development by showcasing local businesses and other key partners, and helped to motivate and guide community leaders to strengthen communities and build social capital.

Supporting a Culture of Volunteerism

Another Blue Plan not only supports employee volunteerism and charitable giving through company-sponsored activities, it also supports employees to be “intrapreneurs” (i.e. internal entrepreneurs) in initiating new ways to serve their local community. One example is a Community Giving Garden, an onsite garden providing fresh produce to hungry people in the community. The garden is maintained by Plan volunteers and has been a catalyst for a network of 15 state-wide corporate giving gardens.

Targeting Philanthropy at Programs that Generate Tangible Outcomes

Still another Blue Plan is funding Medically Integrated Wellness, a program created by the local YMCA that

combines diet, exercise and education to improve the health outcomes of individuals with pre-diabetes and diabetes.

Investing in the Future Primary Care Workforce

Recognizing the critical shortfall in primary care physicians expected by the end of the decade, Blue Plans across the country are investing in the country's primary care workforce through scholarships and student loan payback programs to medical students who choose primary care specialties, and by encouraging all providers to practice at the top of their licenses and inviting qualified nurses to serve as primary-care providers in their networks.

Benefits and Impact

The programs cited above are each yielding positive results. In the second project year of the childhood obesity partnership initiative, all 18 participating centers are exceeding most or all milestones for providing children with 90 minutes of active playtime daily and offering meals/snacks with healthy fruits, nutrient-dense vegetables, and lean protein. Among children who had been at the centers for more than six months, the percentage of those with unhealthy body weights dropped from measurements taken ten months earlier.

As a result of the Play Streets partnership, 48 Blue-sponsored Play Streets events throughout 2013 drew 72,000 attendees, created more than 42 miles of open space for children and their families to be physically active, and generated nearly 200 hours of physical activity programming for communities in need.

In 2012, more than 1,300 pounds of produce was harvested from the network of onsite gardens and donated to local food banks and non-profits. Additionally, 3,000 seed packets were assembled for distribution to further support access to healthy food.

In the YMCA program patients with diabetes or pre-diabetes experienced a 77 percent improvement in A(1c) levels and a 63 percent reduction in the amount of diabetic medications taken. More than 90 percent of participants lost weight, all pre-diabetic participants remained free of diabetes medication, and all participants expressed confidence that they could sustain the changes they made while in the program.

Regarding programs to expand the primary care workforce, Blue Plan investments in primary care education have resulted in thousands of men and women being trained as doctors and nurses and choosing career opportunities in much needed fields of primary care.

Lessons Learned

The main challenge to a successful community investment strategy is finding the right partner. Culture, mission, and capabilities must all be aligned and expectations around roles, responsibilities, and outcomes must be clear from the beginning.

This type of collaboration takes a substantial communication and organizational effort. Even with a common goal of creating a healthier population, how each organization accomplishes that can vary greatly. Creating a collaborative environment where key stakeholders are engaged and involved in the strategy development is critical for success.

Key Take-aways for Employers

To ensure sustainability of investments, it is critical to tie community engagement to the culture and mission of the business itself. Moreover, while involving all key stakeholders throughout the planning process may extend the decision-making process, it ultimately will accelerate the adoption of the group's direction.

Improving the Health of Communities: Spotlight on The Coca-Cola Company

Overview

Known the world over for its brand and beverages, The Coca-Cola Company is also widely respected for its considerable work to improve the health of communities. The Coca-Cola Company has carefully deliberated to identify areas in which the organization could make the most impact to advance active, healthy living within communities, with the goal of supporting access to:

- Exercise, physical activity, and nutritional education programs;
- Programs that motivate behavior modification; and
- Programs that encourage lifestyle/behavioral changes.

The Coca-Cola Foundation (Foundation) is at the core of support for advancing community health. Since its inception, the Foundation has awarded millions of dollars to support active, healthy living initiatives. The support reflects the company's philosophy that "golden triangle" partnerships among business, government, and civil society are essential to drive meaningful change to societal issues.

Working to increase active, healthy lifestyles is directly related to health improvement. To that end, the company's goal is to help raise the standards for physical activity around the world by providing workable solutions and opportunities that foster active, healthy living. Specifically, the Foundation and the company together supported more than 290 active healthy living programs in 118 countries, with a global commitment to sponsor at least one physical activity program in every country where Coca-Cola operates.

The Coca-Cola Company's Strategies for Improving the Health of Communities

Below is a summary of some of the programs—both large and small—supported by The Coca-Cola Company and The Coca-Cola Foundation. The programs are designed to encourage individuals, families, and neighborhoods to live active, healthy lifestyles by expanding nutrition education and physical activity programs through local organizations. The following are a few U.S. and Canadian examples:

Coca-Cola Troops for Fitness

The Coca-Cola Troops for Fitness Program hires U.S. military veterans to lead health and wellness initiatives. The program goal is to improve health outcomes by increasing access to health and wellness programs through existing community-based organizations.

The Coca-Cola Foundation awarded a \$3 million grant to the National Recreation and Park Association (NRPA) to spread this initiative to 12 communities by 2015. The NRPA is a national not-for-profit organization dedicated to advancing park, recreation, and conservation efforts that enhance quality of life for all people. Currently Coca-Cola Troops for Fitness operates in Chicago, San Antonio, Miami-Dade County, Atlanta, Newark, and Sacramento.

In Chicago, a \$3 million multi-year grant to the Garfield Park Conservatory Alliance (GPC) enabled GPC and the Chicago Park District (CPD) to create the Park Families Wellness Initiative. This program features affordable nutrition and active lifestyle programming for communities in Chicago who are in most need of wellness services. Additionally, the initiative allows the CPD to hire American veterans to teach the Coca-Cola Troops for Fitness military-style fitness classes. This program is expected to impact 125,000 citizens, including 50,000 children and 75,000 adults.

In San Antonio, American veterans will serve as fitness coaches and will use a traveling bus equipped with fitness equipment to go to communities that do not have adequate physical activity and health resources. This multi-year grant also funds the Mobilizing Health and Fitness Resources to Neighborhoods project in San Antonio. The project includes a “ride-to-own” bicycle initiative, which has distributed 450 bikes to people who attend classes in bike safety, nutrition, and physical activity. After-school programs teach kids about making healthy choices, team building, and leadership. By the end of 2016, more than 60,000 San Antonians will have increased access to health and wellness programs.

In Miami-Dade County, NRPA, Miami-Dade Parks, and Recreation and Open Spaces will oversee a program that will support increased physical activity and nutrition education at the county’s 13 community centers. By the end of 2016, more than 5,000 Miami-Dade residents will have increased access to health and wellness programs.

The Coca-Cola Troops for Fitness program promotes balanced living, supports veteran employment recruitment, and partners with local communities to create meaningful impact on obesity.

Copa Coca-Cola

Coca-Cola has been a sponsor of grassroots soccer since 1988 in Zimbabwe. After formalizing the program, which was first launched in Mexico, Copa Coca-Cola has expanded to reach young soccer players around the world. The program gives teams of boys and girls between the ages of 13 and 15 the opportunity to compete in tournaments at the local, state and national levels. National competitions culminate in a World Cup-style international championship each summer. Today the program is active in more than 60 markets across five continents and welcomes approximately 1.3 million teens each year.

This year, in the United States, more than 4,000 teens participated in the local phase of the tournament, which was hosted in Atlanta, Dallas, Chicago, Houston, Miami, New

York, San Antonio, San Jose and Seattle. The winning teams from each local tournament traveled to Los Angeles and competed in one national tournament April 18 to April 20.

Copa Coca-Cola is possible thanks to partnerships and support from its official partners, including McDonald’s, Walgreens, and the Starwood Preferred Guest, (SPG®), the award-winning loyalty program from Starwood Hotels & Resorts Worldwide, Inc.

In 2013, the company developed the program’s first global charter, which was designed to align the system across markets, expand the experience and its outreach, and explicitly support our global well-being commitments.

Exercise is Medicine® Program

The Coca-Cola Company is a founding partner of Exercise is Medicine® (EIM), an initiative focused on encouraging primary care physicians and other health care providers to include exercise when designing prevention and treatment plans for patients (also known as ‘green prescriptions’). EIM is committed to the belief that exercise and physical activity are integral to the prevention and treatment of chronic disease and should be regularly assessed as part of medical care. Along with the National Physical Activity Plan, Exercise is Medicine strives to make physical activity a “vital sign” that is routinely assessed at every patient interaction with a health care provider.

In addition to improving a patient’s overall health, increasing physical activity has proven effective in the treatment and prevention of chronic diseases such as obesity, diabetes, and cancer. Even with all the benefits of physical activity, in the United States more than half of adults do not meet the recommendations for sufficient physical activity in the Physical Activity Guidelines.⁴² Physical activity is also a critical antidote to the fact that about 17 percent of children in the United States are obese.⁴³

In 2010, as a result of international interest and demand, EIM’s mission expanded to one of building a global

awareness and infrastructure to implement physical activity promotion in health care settings, with a particular focus on physicians and other health care providers. EIM is currently in more than 40 countries including low- and middle-income countries (LMICs) as well as developed countries.

EPODE International Network (EIN)

In 2011, The Coca-Cola Company became the first founding global partner of the EPODE International Network (EIN). EIN is an international non-governmental organization committed to reducing and preventing childhood obesity and non-communicable diseases by promoting physical activity and nutrition education through community-based programs. Today the network has 39 community-based programs in 27 countries, positively impacting the health and well-being of nearly 170 million people across the world. All programs are designed to prevent childhood obesity with support provided by the EIN, based on lessons learned from the EPODE model and its international implementation over the last 20 years.

Since EPODE's feature in the United States Chamber of Commerce report, "Navigating Obesity: A Road Map For Prevention,"⁴⁴ released in October 2013, as one of the most promising, comprehensive, and cohesive models to tackle obesity and its related diseases, the EIN has been working with the U.S. Chamber of Commerce Foundation Corporate Citizenship Center to implement an obesity prevention model in the United States that will be known as *Prevention Together*. *Prevention Together* represents the next generation of community transformation initiatives highlighting seven key features: an efficient coordinating infrastructure; effective public-private engagement; cohesive social marketing; effective knowledge transfer; strong monitoring and evaluation; expert operational know-how; and a powerful scale-up platform. As a multi-pronged campaign that helps communities create a movement on well-being, *Prevention Together* is geared for community change. It works with communities to align existing interests

and activities and galvanize stakeholders across sectors to drive positive social and health impact in the community.

EPODE is currently being implemented in Canada with two pilots planned in the United States.

Good Sports Program

With the support of The Coca-Cola Foundation, Good Sports was able to grow its program in Los Angeles, New York City, Chicago, and San Francisco, impacting more than 40,000 youth. Good Sports is dedicated to supporting youth sports by providing equipment, footwear, and apparel to disadvantaged young people nationwide.

Youth sports programs have faced severe budget cuts in most regions and many organizations respond by shifting the costs to families in the form of higher fees. In some communities, this can effectively exclude disadvantaged children from joining teams. More than 60 percent of suburban youth participate in sports leagues compared with just 20 percent of urban youth.⁴⁵

By partnering with sporting goods manufacturers, Good Sports is able to provide equipment, apparel, and footwear to programs in need. This lowers their costs, which helps keep fees affordable, creates more scholarships, enhances the quality of their activities, and introduces new sports into their schools or organizations. Good Sports strives to ensure that all kids are equipped to lead healthy, active lifestyles, regardless of income level.

In the fight against childhood obesity, sports and fitness are powerful weapons. Studies show that in addition to the obvious benefits of regular activity, kids who participate in sports enjoy better nutritional awareness and improved self-esteem. Also, these kids are 57 percent less likely to drop out of school, 49 percent less likely to take drugs, and 37 percent less likely to become teen parents.⁴⁶ Good Sports has provided more than \$9 million in equipment to more than 800,000 young athletes to date.

Partnering With Nurses

With support from The Coca-Cola Foundation, the National Black Nurses Association (NBNA) and the National Hispanic Nurses Association (NHNA) are helping to reduce childhood, adolescent, and adult obesity across the United States. Through its Preventive Health Action Team, the NBNA is working with more than 15 local chapters to build upon existing partnerships with community-based organizations. With help from the local chapters, NBNA is supporting healthier lifestyles for individuals, including better nutrition, more physical activity, and ways to address chronic conditions such as heart disease and diabetes. The chapters are also providing clinical information and practical tools to help health care providers in their regions work with their patients to improve health and wellness.

The NHNA is implementing MUEVETE (MOVE) training sessions to help their members become trainers within their own communities, and work with local community organizations, health care professionals, physical education teachers, and other educators, to reduce childhood and adolescent obesity.

Boys & Girls Club of America's Triple Play Program

The Triple Play program was launched in 2005 by Boys & Girls Club of America (BGCA) in collaboration with the U.S. Department of Health and Human Services with support from Coca-Cola—a founding sponsor. Triple Play is a game plan for the Mind, Body and Soul. It encourages kids to eat a balanced diet and become more physically active, and increases their ability to engage in healthy relationships.

Since its inception in 2005, Triple Play has made over seven million connections with kids across its three program components. Coca-Cola's support for Triple Play reinforces its social commitment to positively impact the communities it serves through physical activity and nutrition education programs.

ParticipACTION

The ParticipACTION Teen Challenge sponsored by Coca-Cola Canada is a national youth physical activity program delivered by a network of community-based organizations working together to break down the barriers teens face in getting active. This innovative program is aimed at getting Canadian teenagers moving by providing funding to local organizations for things such as equipment, coaching, or access to facilities where teens can be active. The program allows teens to define how they want to get active and provides them with the support to make it happen. In addition, through joint marketing initiatives, ParticipACTION and Coca-Cola Canada work together to promote and encourage teens to adopt an active lifestyle.

ParticipACTION is a non-governmental agency that is the national voice of physical activity and sport participation in Canada. It works with its partners in various levels of government, community organizations and corporate sponsors to inspire and support Canadians to move more. It is a classic example of the “golden triangle”—bringing together business, government, and civil society.

Healthy Weight Commitment Foundation

In 2009, The Coca-Cola Company became a founding member of the Healthy Weight Commitment Foundation (HWCF), an organization whose national, multiyear effort is designed to help reduce obesity—especially childhood obesity. HWCF works with families and schools through its Together Counts™ campaign, a program that encourages active, healthy living through energy balance.

After just 5 years, the Together Counts program has 16.6 million children engaged with its free, standards-based, energy balance curriculum and a cumulative consumer reach of nearly 1 billion. In order to maximize the impact of their curriculum, HWCF has aligned the Together Counts™ content with national education standards.

In addition, HWCF food and beverage companies, including The Coca-Cola Company, recently fulfilled a pledge to reduce a combined 1.5 trillion calories from the marketplace by 2015. This pledge, made to First Lady Michelle Obama and subjected to an independent evaluation from the Robert Wood Johnson Foundation, was completed by the end of 2012, 3 years earlier than promised. HWCF members exceeded their goal by 400%, reducing 6.4 trillion calories from the marketplace, equal to 78 calories per person per day.

Benefits and Impact

The Coca-Cola Company and its Foundation have positively impacted millions of people in the U.S. and Canada and many more throughout the world through community education and activity programs.

The Coca-Cola Troops for Fitness Program is bringing fitness programs and equipment to thousands of people in 12 cities and neighborhoods that lack access to such opportunities. Copa Coca-Cola has engaged 4,000 U.S. teens in competitive soccer, and Good Sports has provided sporting equipment to more than 800,000 youth. Through Exercise is Medicine, more than 40 countries are embracing the idea that exercise needs to be a standard part of a disease prevention and treatment medical and health paradigm across the world and an important vital life sign that must be assessed at any sick or wellness visit. The EPODE International Network is working to prevent childhood obesity in 27 nations, and will soon be piloted in the U.S. The Coca-Cola Foundation is supporting the work of nursing groups to develop trainers to reduce childhood and adolescent obesity in 15 local chapters in the U.S. With support from Coca-Cola, the Boys & Girls Club of America has connected with more than seven million kids around healthy lifestyles, and the ParticipACTION Teen Challenge is bringing healthy programming to locations in every province across Canada.

Lastly, through participation in the HWCF and support of its Together Counts™ campaign, The Coca-Cola Company, in concert with other HWCF Members, is proud of the goal achieved in removing 6.4 trillion calories from the U.S. marketplace and providing nearly 17 million children with an energy balance curriculum that helps raise their awareness and understanding of the importance of an active, healthy lifestyle.

Lessons Learned

The most successful solutions are those that are tailored to each community and its specific needs. Working with local, community-based organizations, and leveraging their expertise and local roots, increases outreach and boosts engagement. Partnering with local chapters of national organizations helps link local goals and strategies to national initiatives. Designing programs that meet multiple goals — such as hiring veterans to lead fitness programs, or supporting the link between physical activity and academic performance — is an extra “win” for the community and helps drive a “360° approach” to advancing health and wellbeing — the ultimate goal.

Key Take-aways for Other Employers

Partnerships at the local level are key to creating and supporting effective programs that help address community needs. The most effective partnership is “the golden triangle”—bringing together business, government, and civil society. Coca-Cola doesn't work with just one partner or through just one model. It works with different partners and organizations across the globe to make a meaningful impact on each community's particular needs and priorities.

Corporate citizens play a critical role in promoting health and well-being in the communities they serve. The Coca-Cola Company believes that without sustainable communities, its business cannot be sustainable. Its corporate success is tied to the success of the communities it serves.

Improving the Health of Communities: Spotlight on Verizon Communications

Overview

Verizon believes that there are tremendous opportunities to grow and innovate by applying technology to important social issues. Nowhere is that philosophy more true than in health care, where applying new technology to existing needs can improve the lives of consumers and the health of communities.

Verizon's innovative health care initiative focuses on three areas of need—children's health, women's health, and senior health—and targets underserved populations within each area. By partnering with private and public health-related organizations throughout the nation, Verizon is leveraging technology to build healthier communities.

Verizon's Strategies for Improving the Health of Communities

Children's Health: Connecting Kids to Quality Health Care

For the more than 15 million children in the United States who do not have access to regular health care, and for their families, the mobile health clinics deployed by the Children's Health Fund have filled a critical gap. These "big blue buses" are fully equipped medical offices that visit underserved areas, particularly poor rural regions and urban settings, including homeless shelters. Verizon is working in partnership with Children's Health Fund to improve child health at six program sites in San Francisco, Phoenix, Dallas, Miami, Detroit, and New York. By equipping these mobile doctors' offices with 4G LTE wireless technology, and enabling health IT solutions such as telemedicine, Verizon enables clinicians to access electronic health

records and provide access to specialty care. Verizon technology provides real-time connections to immunization records that are required by schools but often hard for parents to produce, especially if they are living in a shelter. The technology also supports education and disease management through an innovative texting program.

Women's Health: Empowering Women to Manage Their Care

Most women lead busy lives, as heads of households and care givers, and many cannot find enough time to visit the doctor or even take adequate care of their health. Underserved women are also diagnosed with chronic disease at greater rates and have higher mortality rates than men. If they are struggling socioeconomically, the demands of work and family combined with limited transportation, inadequate housing and other barriers can have even more negative health consequences. To address this, Verizon is working in partnership with the Society for Women's Health Research as well as academic health centers associated with the medical departments at Johns Hopkins University and Emory University.

The focus of the partnership is on improving chronic disease self-management through technology for women with socio-economic barriers to accessing care. A wireless glucometer for diabetes patients, or a wireless weight scale for heart failure patients, can transmit data to an online portal that a care manager can access, enabling clinicians and patients to work together remotely. This improves a patient's ability to follow her clinician's care plan and provide self management of chronic conditions for better long-term outcomes.

Senior Health: Extending Independent Living

In partnership with health centers that are members of the National Association of Community Health Centers network, Verizon is focused on using technology to enable underserved seniors with diabetes, heart and lung

disease to age in place longer, with the help of remote monitoring devices and telemedicine. The longer seniors can avoid hospitalizations and assisted care, the better their long-term health outcomes will be. In addition, the changing demographics in the senior population is putting increased pressure on the health care system to find innovative ways to address chronic disease management. Community health centers are partnering with Verizon to deploy remote biometric technology in the homes of senior patients. This will enable them to send daily readings of their blood pressure, weight, glucose, or lung capacity to a care manager. The program will also utilize tablet-enabled telemedicine to improve disease education and care plan adherence.

Benefits and Impact

Effectively deployed technology can help patients more easily access care, particularly patients in underserved areas or whose socio-economic condition or advanced age makes getting care difficult. By 2016, more than 80 percent of broadband access is expected to be mobile, which in many cases will provide many people with their first and only access to the Internet via a mobile device.⁴⁷ Such connectivity, combined with advanced, low-cost devices, provides unprecedented opportunities to empower people and improve health and well-being.

Verizon programs integrate technology into patient-centered care models that pair technology with targeted disease education programs. This connects the ecosystem and delivers health education to those who need it the most. Empowering patients to make better health-related decisions enables improved disease management, which will result in better health outcomes.

Verizon has developed a framework for measuring the social value of its philanthropic work. In health care, the company is measuring changes such as increased access to providers and improved disease management in the near-term and

plans to measure health outcomes and health care costs over the long-term. During 2013, the company focused on implementing these health care initiatives and in 2014 will report impact results, which we hope will demonstrate the shared value that Verizon is creating through this and its other philanthropic programs.

Lessons Learned

Engaging individuals more fully in their health and health care and improving access to care not only improves the experience of care for patients and their families, but also improves the quality and cost-effectiveness of care. Individuals who need the most help are often the most difficult to reach. The use of mobile and online tools can significantly boost the level of engagement of hard-to-reach patient populations, by tapping into devices that nearly every American uses today.

Organizations that are providing health care to medically underserved communities are increasingly leveraging technology to improve the health of vulnerable populations. Examples include online disease education resources, self-monitoring and tracking tools, electronic communications between the patient and the care team, electronic health records, remote monitoring, and telehealth, all of which have been shown to improve the effectiveness of and reduce the costs associated with outreach and engagement of individuals.

Key Take-aways for Other Employers

Community-based, technology-enabled health care programs should be designed in collaboration with forward-thinking health care organizations with proven care delivery models. Technology can increase access to health information, speed up delivery of critical care data and remove distance barriers, but it should be integrated with clinicians, patients, and families and deployed as part of a patient-centered care plan in order to have the best chance at demonstrating efficacy.

Improving the Health of Communities: Spotlight on Walgreen Co.

Overview

In a bygone era, the corner pharmacy and neighborhood pharmacist were important contributors to the health and wellbeing of every community. With more than 70,000 health care service providers at more than 8,200 store locations, more than 400 health care clinics co-located with pharmacies, and more than 200 health system pharmacies, Walgreens today is much more than the corner pharmacy. By redefining the role of community pharmacy within the health care system, and working to meet the growing demand for health care services, this health and wellbeing company is increasingly playing a critical role in the health of the many communities it serves.

The demand for pharmacy services is increasing. Today, 17 percent of health care spending by older Americans—a cohort that is rapidly growing—is spent on medication.⁴⁸ In addition, the growing demand for health care services of all kinds, and the pressure to control costs, is fueling the trend for health care professionals such as nurse practitioners and pharmacists to work at the top of their licenses. Today, these health professionals are performing preventive health tests to identify potential health risks, helping patients adhere to their medication regimens and providing medication therapy management—all key roles in helping people stay well. In fact, Walgreens is rapidly becoming a key part of the community health care delivery team, helping primary care providers, health plans, and health systems address patient needs and appropriately fill gaps in care.

Walgreens' Strategies for Improving the Health of Communities

In its role in community health care, Walgreens is implementing innovative strategies to improve health and health care in the United States.

Rapidly Expanding Immunization Rates to Keep Americans Well

Immunizing against diseases such as the flu, pneumonia, and shingles not only keeps Americans healthy, it also reduces costs within the health care system. According to the CDC, vaccines are among the most cost-effective clinical preventive services, reducing direct health care costs by \$14 billion.⁴⁹ From 2001 to 2010, they also prevented 20 million cases of childhood disease and saved 42,000 children's lives.⁵⁰ Walgreens is the single largest retail provider of vaccinations in the United States, administering a total of 8.5 million vaccines in fiscal year 2013 alone. Walgreens has expanded the number of immunizations it provides through a transformative strategy that engages with federal and state health officials, invests in a medical billing solution to increase access to commercial payers, and aggressively expands to provide all 17 CDC-recommended vaccines in stores, all day, and every day, with positive results. The number of flu shots alone administered by Walgreens grew from just under one million in 2009 to nearly seven million in 2013.

Increasing Access to Care Through Convenient Health Care Clinics

Today in the United States, 62 million people have no or inadequate access to primary care.⁵¹ Walgreens' more than 400 in-store "Healthcare Clinics" are helping to fill that gap in care for patients at lower costs. A Healthcare Clinic visit with a board-certified nurse practitioner costs four times less than an emergency room visit and is nearly half the cost of an urgent care or physician office visit.

Having traditionally provided preventive services such as physical exams or treatment for minor health problems, Walgreens is now expanding its services, introducing assessment, treatment and management for chronic conditions such as hypertension, diabetes, high cholesterol, asthma, and others. Access to diagnostic testing—such as lab results—facilitates evaluation, diagnosis, and treatment of patients. Technology such as electronic medical records, shared billing and scheduling platforms, and integrated data helps pharmacists and clinic staff better support care and coordination with health plans, primary care providers, and other health system partners.

Benefits and Impact

Walgreens stores are located within three miles of 63 percent of the all Americans, 75 percent of all African Americans, and 78 percent of all Latinos, with more than two-thirds serving communities in medically underserved areas. Through our immunization programs and Healthcare Clinics, Walgreens is making acute, preventive, and chronic health care services available to more people in more communities across the country. The company's pharmacies are open 365 days a year, with 1,600 open 24 hours a day. Pharmacists and nurse practitioners are available without an appointment, providing convenient access to quality care at a lower cost. By expanding access to health care services, the company is helping to meet health care's triple aim: a better patient experience, improved patient health outcomes, at lower cost to both patients and payers.

Lessons Learned

When Walgreens began to expand into new services five years ago, the company was transforming an industry for customers unaccustomed to receiving health care services from a community pharmacy. The company set about to change that with a comprehensive legislative, regulatory, industry and consumer strategy. Through that strategy, the company worked with state regulators to ensure pharmacists could provide vaccines, trained all 26,000 pharmacists as certified immunizers, and enhanced in-store procedures to serve customers. Today, the company provides vaccines at all pharmacies and clinics and has changed the way flu shots and other vaccines are provided in the industry.

Key Take-aways for Other Employers

Walgreens is focused on advancing the role of the community pharmacy, changing the role we play in delivering health care in local communities, across the country and around the globe. The company has seized the opportunity to be a provider of care and a complete partner to its clients to ensure that patients receive quality care, in their communities, at costs they can sustain, helping them to lead healthier lives.



Health Program

Health Innovation Initiative



Chapter 3: Improving the Health Care System

Overview and Benefits

At present, the dominant way in which health care services are paid in the United States is through fee-for-service reimbursement. Fee-for-service rewards volume—e.g., the number of visits, tests, and other health care services provided. The United States would derive greater value from its spending on health care if its dominant form of payment instead rewarded providers for quality of care, control over the total cost of care, and—most importantly—outcomes achieved. There is currently wide variation across U.S. health plans in the percentage of payments to doctors and hospitals that take this approach; one estimate indicates that, on average, only 11 percent of such payments are value-oriented while the rest remain largely fee-for-service.⁵²

By tying payments more aggressively to patient outcomes rather than to services rendered, the U.S. health care system could deliver substantial savings over the next decade. A recent McKinsey & Company report estimates that such a move could save consumers, employers, and taxpayers more than \$1 trillion over the next ten years, while improving the delivery of care.⁵³

Different methods can be used to refocus payment on outcomes. Some health systems have succeeded by adding carefully designed financial incentives for performance to conventional fee-for-service reimbursement. However, a growing number of systems are adopting new payment approaches. Bundled payments, for example, give providers a flat fee for all services delivered during an “episode of care,” such as a knee replacement or pneumonia treatment; since the fee must cover not only routine care but also any services required (because of complications, for example), it encourages high-quality, cost-efficient care delivery.

In many cases, the outcomes-focused payment approaches are being implemented in conjunction with new models of

care delivery that use care teams to more closely integrate care and improve the patient experience. Examples of these models include medical homes and accountable care organizations, or ACOs. Many of these teams are using telemedicine and other forms of “virtual” care delivery to extend their reach, make care more convenient for patients, and lower costs.

A range of federal, state, and private-sector organizations are now investing billions of dollars in hundreds of new delivery and value-based payment models across the United States. Private-sector employers—who together with their employees pay for about 45 percent of the nation's health care expenditures—can play a significant role in accelerating these new delivery and payment models to improve health and health care in the United States.⁵⁴ They can also work with health insurers, providers, and other stakeholders to define a common set of metrics that everyone can use to measure quality.

In recent years, many employers have been using “value-based purchasing” as a force to promote quality and value in health care. Common methods include:

- Measuring and reporting on the comparative performance of health care providers;
- Paying providers differentially based on performance; and
- Designing health benefit strategies and incentives that encourage individuals to both select high-value services and providers, and better manage their own health and health care.

According to a recent survey, 11 percent of employers currently offer incentives (or penalties) to providers to improve quality, efficiency, and health outcomes (e.g., performance-based payments); an additional 7 percent plan to do so in 2014; and 26 percent are considering doing so in 2015 or 2016.⁵⁵

Employers are also increasingly exploring new “virtual” modes of care delivery to improve access to and convenience of care. According to a March 2013 survey, 45 percent of employers expect to see new access points for health care delivery, such as telemedicine, e-visits, and data-enabled kiosks.⁵⁶

Telemedicine, or the use of technologies to remotely diagnose, monitor, and treat patients is one example of technology-enabled care delivery. Remote patient monitoring services use devices to collect and send data (such as weight, blood pressure, and blood glucose levels) to clinicians and care teams to support an individual’s health and health care.

Telemedicine supports and enhances team-based care by connecting providers remotely and fostering clinical collaboration and coordination. It also provides a mechanism for accessing specialized knowledge across geographic boundaries. Telemedicine has been shown to increase access and improve health outcomes.⁵⁷

Common Challenges and Key Imperatives

As new care delivery and payment models continue to proliferate across the United States with support from the federal government, states, and the private sector, a number of lessons are emerging:

Engaging Provider Participation

Engaging providers in new models of care delivery requires incentives and new payment models. Employers—in partnership with health plans—can play a significant role by leveraging their combined purchasing power and migrating payments away from simple fee-for-service systems toward approaches that reward value. Employers can also support provider participation in new models of care by

creating more transparency among employees and other beneficiaries into provider performance and incentivizing the selection of providers who deliver better outcomes.

Engaging Patients in Their Health and Health Care

Research shows that the behaviors of individuals contribute significantly to health outcomes in the United States.^{58,59} Getting individuals engaged in their own health is crucial to achieving better outcomes, particularly within new forms of care delivery and payment, such as ACOs.

Employers can play a significant role in engaging individuals to take actions to improve their health and health care. For example, employers can promote health and wellness activities (such as those described earlier in this report) through incentives and benefit design, by educating individuals about the cost and quality of various treatment options and providers, and by aligning incentives with patient-centered care.

The Lack of Interoperability and Electronic Information-Sharing to Support Higher-Quality, More Cost-Effective, Coordinated Care

Developing and implementing new models of care requires investment not only in electronic health records (EHRs) but also health information exchange, which together enable clinicians at the point of care to access, analyze, and share patient information from the multiple settings in which care and services are delivered, such as physician offices and clinics, hospitals, imaging centers, laboratories, and pharmacies. Such health IT is also required to effectively capture, analyze, and produce performance measures that track cost and quality outcomes. New models of care also require robust capabilities to engage, communicate, and exchange information with patients.

To date, more than \$24 billion in federal investments have been made in EHRs through the Centers for Medicare

and Medicaid Services EHR Incentive Program.⁶⁰ Such investments have led to higher EHR adoption rates among physicians (48.1 percent in 2013) and hospitals (59 percent in 2013).^{61,62} Despite such investments and considerable advancements in EHR adoption rates, the interoperability of installed systems and the level of electronic information-sharing among those that deliver care and services is still modest. Only 14 percent of physicians surveyed in 2013 were electronically sharing data with providers outside of their organizations, while 51 percent of hospitals were sharing information with ambulatory care providers outside of their organizations and 36 percent were sharing information with other hospitals outside their organizations.^{63,64}

Transitioning to payment and delivery models that focus on better outcomes will help to create the business case for information-sharing. By communicating expectations and leveraging combined value-based purchasing power to encourage electronic information-sharing, employers can play a critical role in advancing the interoperability of systems and the development of the electronic information infrastructure required to improve health and health care. This can be accomplished by requiring more transparency about the level of electronic information-sharing among providers, aligning incentives with outcomes rather than volume, and modifying benefit design to incentivize selection of providers who share information electronically to support coordinated care.

Lack of Access to Data on Cost and Quality Outcomes

Meaningful quality measures are critical to assessing the quality of care provided to employees, the satisfaction of employees with their health care and benefits, and an employer's health care expenditures. Within new models of

care, they also help determine a provider's ability to share in savings, avoid penalties, or receive bonus payments. Additionally, these measures facilitate public reporting of information that can help consumers make decisions about where to spend their health care dollars and can help providers understand how their performance relates to their peers.

Historically, employers, health plans, and providers have had little electronic access to health information. The increased digitization of the U.S. health care system—particularly the rapid adoption of electronic health records among providers, and the increased use of online and electronic tools among individuals—can revolutionize the ability to rapidly assess performance on a range of outcomes across employee populations; identify opportunities and interventions for improvement; and continually monitor impact, while effectively managing privacy and security.

Limited Resources and “Bandwidth” Among Employers and the Need for Implementation Support

Even within large employer organizations, employee benefits functions are often leanly staffed and resource-constrained, leaving little time to fully explore and implement new, transformational programs.

Compilation of best practices and development of tools, guides, and workshops targeted specifically to human resources and benefits managers can help educate them and increase their comfort level with such programs. Agreement among large and medium-sized employers on common principles and strategies, coupled with collaboration of employers at the local level, can help manage workload, manage risk, and assure success. Strategic leadership and executive support from the highest levels of the company can also play an enormous role in driving focus and promoting success.

A Menu of Employer Actions

The following is a menu of possible actions employers could take to improve the health care system.

<p>Immediate</p>	<ol style="list-style-type: none"> 1. Assess the broad array of current requirements for and levels of performance associated with providers in the markets in which you offer coverage 2. Assess current payment models used by public- and private-sector payers to reimburse providers in the markets in which you offer coverage 3. Partner with health plans to offer coverage options for practical, technology-enabled care delivery methods that have been shown to improve access and health outcomes, which may include telemedicine and remote patient monitoring
<p>Near-Term</p>	<ol style="list-style-type: none"> 4. Promote demonstration of value through measurement, continuing to move toward a collection of meaningful performance measures associated with cost, quality, prevention, and the patient experience of care 5. Measure and increase the percentage of payments to providers that are based on value and outcomes rather than volume 6. Support stronger relationships between individuals and primary care providers 7. Promote electronic information-sharing among providers, laboratories, and patients to support improvements in the cost, quality, and coordination of care and encourage interoperability of electronic health records to support such information-sharing 8. Highlight coverage options that support technology-enabled care delivery, such as telemedicine, to promote adoption 9. Promote transparency of clinicians' (1) performance on a range of meaningful performance measures, including those related to cost, quality, prevention, and the patient experience of care; (2) ability to electronically exchange clinical information with other providers for transitions of care; and (3) ability for patients to electronically access and use information contained in their health records 10. Promote the development of educational resources, guides, and tools to support employer implementation of strategies to improve the health care system
<p>Long-Term</p>	<ol style="list-style-type: none"> 11. Continue to measure and increase the percentage of payments to providers that are based on value and outcomes rather than volume 12. Educate employees about meaningful differences in performance among providers and implement value-based insurance design coupled with transparency tools to support beneficiaries in seeking care from high-value providers

Overview of CEO Council Member Strategies for Improving the Health Care System

CEO Council members are promoting new models of delivery and payment. They are also enabling employees and their families to access care remotely through online care by offering coverage for this convenient mode of care in partnership with their health plans. A summary of CEO Council member strategies is provided below.

1. **Aetna** is using a provider collaboration model through Medicare Advantage to improve the quality of care and lower health care costs, and providing clinical and IT infrastructure for accountable care arrangements.
2. **Blue Cross and Blue Shield Companies** are driving the shift toward value-based care models that put the patient first, move away from fee-for-service reimbursement to arrangements based on value, and instill accountability across the care continuum. Models in place at Blue Plans across the country include supporting a strong foundation in primary care, recalibrating hospital payment to align with quality and efficiency, and supporting a system of accountable care.
3. **The Institute for Advanced Health and NantHealth** are creating an integrated health platform that will serve as a comprehensive, cloud-based data exchange infrastructure to connect care providers with patients and integrate research with clinical practice. They are also partnering with organizations on a range of activities to support improvements in the delivery of care, access to care, and patient-centered care.
4. **McKinsey & Company** is applying data analytics to design and test new approaches for rewarding high-quality, cost-efficient health care delivery (including new payment models). In addition, it is helping health care providers improve their clinical operations, and it is working with both providers and health insurers to increase their efficiency.
5. **Verizon Communications** is providing coverage for online care for its employees and delivering enabling technologies to support improvements in health and the health care system.

Improving the Health Care System: Spotlight on Aetna

Overview

Health insurance companies can play a powerful role in improving the health care system by collaborating with health care providers to develop new models of care that help their members and patients. Aetna is working to build a new health care system model for the future that reorients insurers' traditional focus by redefining customers to include providers, consumers, and employers. By aligning economic incentives between payers and providers, Aetna is working to create a health care system that provides consumers with superior outcomes and a better patient and consumer experience that is affordable and sustainable. Aetna's Medicare Advantage Provider Collaboration program, and its work to create accountable care organizations (ACOs) with provider organizations across the nation, are examples of this new model that is improving the quality of care and health outcomes while also reducing costs.

Aetna Strategies for Improving the Health Care System

Medicare Advantage Provider Collaboration: NovaHealth

Through this program, Aetna has collaborated since 2008 with NovaHealth, a medical group (Intermed), and an independent physician association based in Portland, Maine, that provides care to approximately 1,600 Aetna Medicare Advantage members. The collaboration functions something like an accountable care organization, but for a Medicare Advantage population, using shared data, financial incentives, and collaborative care management to improve the health of the population.

The program embeds Aetna's nurse case managers with NovaHealth, where they help develop care plans, monitor adherence to plans, educate patients, and coordinate care to build continuity and improve health outcomes. The role of the Aetna nurse case manager is a major component of the collaborative relationship with NovaHealth. Aetna's nurse case managers serve as a single point of contact and work directly with NovaHealth's clinical staff to help coordinate care and enhance adherence for Aetna Medicare Advantage members.

Aetna's program with NovaHealth was one of its first Medicare Provider Collaboration arrangements. Aetna currently has more than 100 Medicare Advantage Provider Collaboration arrangements with health care providers across the country.

The combined work of the physicians, Intermed/ NovaHealth, and Aetna has resulted in dramatic impact on quality and cost compared with unmanaged Medicare populations in Maine, as published in *Health Affairs*, a leading health policy publication.⁶⁵

Accountable Care Organizations: Banner Health Network

ACOs use technology and a team-based approach to care for a population of patients. Doctors and hospitals assume accountability for the outcomes and are rewarded financially for achieving higher quality, greater efficiency, and an overall better patient experience.

In these arrangements, Aetna works with the provider organization to assess their readiness to take on risk and manage populations. Aetna then works with the organization to build the health information technology (IT) and clinical infrastructure that allow the providers to transform their delivery system, focus on coordinating care for patients, and accept financial risk.

Aetna has more than 30 such arrangements, including with Banner Health Network of Arizona to support its accountable care organization. Banner Health Network is one of the Medicare Pioneer ACOs, but it also has commercial ACO relationships. Banner Health Network is a patient care and business venture between Arizona Integrated Physicians, the Banner Medical Group, the Banner Physician Hospital Organization (BPHO), and Banner Health. The Banner Health Network currently has more than 2,000 employed and private practice physicians located in the Phoenix metro area serving four million residents.

Together, Aetna and Banner's goal is to achieve the triple aim of accountable care (better care, better health, and better cost) through population health. Banner is at the forefront of change as the overall reimbursement structure of health care services is changing.

Aetna and Banner Health Network collaborated to deploy product, technology, and care management capabilities to deliver patient-centered, accountable care across multiple populations, including the Pioneer ACO (Medicare fee-for-service), Aetna's commercial membership, and Banner's employees. In addition, Aetna and Banner are jointly offering health plan products that incent and motivate members to seek care within the ACO network.

Aetna worked with Banner to build a health IT framework and clinical infrastructure. The clinical model focuses on patient and member experience. Patients have a virtual care team that includes nurses, doctors, and other providers supported by the technology infrastructure that allows any member of the care team to see and communicate through the full patient record. Information is exchanged electronically; there is no hand-off of paper copies or reliance on notes from phone calls. Aetna and Banner work together to pilot new ideas and concepts to improve the care for Aetna members in the ACO through more coordinated care.

Benefits and Impact

Medicare Advantage Provider Collaboration: NovaHealth

Together, Aetna and NovaHealth have achieved two main goals of ACOs: improving quality of care and lowering health care costs. Results from 2011 that were published in *Health Affairs* show that:⁶⁶

- Patients in the program had 50 percent fewer inpatient hospital days, 45 percent fewer hospital admissions, and 56 percent fewer readmissions than unmanaged Medicare populations statewide.
- More than 99 percent of these Aetna Medicare Advantage members visited their doctors in 2011 to receive preventive and follow-up care.
- NovaHealth's total per member, per month costs for its Aetna Medicare Advantage members were 16.5 to 33 percent lower across all medical cost categories than for other Aetna Medicare Advantage members not cared for by NovaHealth.

Through the Provider Collaboration Program, NovaHealth has met a number of clinical quality metrics agreed upon by both sides, including:

- Increasing the percentage of Aetna Medicare Advantage members who have an office visit each calendar year;
- Encouraging office visits every six months for members with chronic heart failure (CHF), chronic obstructive pulmonary disease (COPD) or diabetes;
- Encouraging HbA1C (blood glucose) tests each calendar year for members with diabetes; and
- Confirming that members schedule follow-up visits within 30 days of being discharged from an inpatient stay.

Accountable Care Organizations: Banner Health Network

Aetna members within the Banner Health Network pay less out of pocket; benefit from a focus on wellness; receive more coordinated care and greater assistance with managing their chronic conditions; and have access to Aetna's online tools.

Aetna and Banner Health Network implemented a risk-sharing agreement that compensates and rewards Banner Health based on achieving certain quality, efficiency and patient satisfaction measures. The measures include, but are not limited to, the percentage of Aetna members who receive recommended preventive care and screenings; reductions in hospital readmission rates; and expanded access to primary care physicians.

Across all patient populations served by the Banner Health Network ACO, results from 2012 showed the following year-over-year improvements:

- 3.0 to 5.5 percent medical cost savings over prior 12 months
- 1.0 to 8.0 percent increase in PCP visits
- 7.0 to 8.0 percent reduction in hospital admissions
- 0.5 to 1.0 percent reduction in hospital readmission rate
- 3.0 to 7.0 percent reduction in high-tech radiology utilization.

Lessons Learned

Medicare Advantage Provider Collaboration: NovaHealth

Getting a high level of physician buy-in is one key to a successful collaboration. This requires physician-to-physician communication and the provision of data and other tools to help providers measure their performance and improve. In a successful collaboration, ideas, recommendations and suggestions flow in both directions. Nurse case managers, particularly case managers embedded in physicians' offices, can be invaluable to health care providers as they become valued and trusted members of the overall care team.

Accountable Care Organizations: Banner Health Network

Strong working relationships are critically important to the development of accountable care models. Employers and their insurers should work with providers to create arrangements that advance the interests of each stakeholder and of patients. Effective communication with employees about the value of more coordinated health care is an essential element in driving quality up and costs down. Patients who are educated about the importance of selecting doctors and hospitals whose reimbursement is based on quality, cost and patient satisfaction, rather than on volume, will be empowered to make choices that support this shift.

Key Take-aways for Other Employers

Aetna believes that patient-centered collaboratives are a stepping stone to accountable care organizations, which further align financial incentives with high-quality, more efficient care, says Randall Krakauer, MD, FACP, FACR, Vice President, National Medical Director of Medical Strategy for the Office of the Chief Medical Officer.

“By aligning our clinical goals and sharing data, we can help improve health outcomes for the members that we serve.

Working together, we can help confirm that our members are receiving the right care at the right time and support them as they try to be as healthy as possible” says Krakauer.

“Value-based, patient-centered care models such as accountable care organizations or ACOS, bring employers, providers and insurers together to help drive much-needed change to the quality, delivery and cost of health care in America,” says Charles D. Kennedy, MD, chief executive officer of Accountable Care Solutions for Aetna.

Improving the Health Care System: Spotlight on Blue Cross and Blue Shield Companies

Overview

Value-based care delivery models that reward providers for coordinating patients' care, adhering to evidence-based guidelines and producing positive outcomes are proving to be effective ways to lower costs and improve quality. Blue Cross and Blue Shield Plans are working with doctors, hospitals and other health care professionals in 49 states, Puerto Rico and Washington, DC, to adopt new, value-based models of care. Today, 24 million Blue System members participate in more than 350 value-based payment arrangements under the care of roughly 156,000 primary care providers and more than 59,000 specialists—one of every four of the country's active physicians.

These programs take on many forms, based on local needs. But they all share certain characteristics. They:

- Put the patient first.
- Move away from fee-for-service reimbursement to arrangements based on value.
- Instill accountability across the care continuum.

Blue Cross and Blue Shield Strategies for Improving the Health Care System

Following these tenets, Blue Plans across the country are working together to replicate success nationally

while tailoring programs for different types of providers in innovative ways that leverage local market needs and characteristics. The following are examples of how Blue Cross and Blue Shield Plans are improving the health care system.

Leveraging a Strong Foundation in Primary Care

Programs that apply value-based provider incentives can create stronger relationships between patients and their primary care physicians, and they can support better coordination across the spectrum of care. Since launching its patient-centered medical home program in 2009, one Blue Cross and Blue Shield Plan now has 3,600 physicians from almost 1,200 medical practices participating, providing enhanced care to more than one million members. This program has demonstrated strong cost and quality results, including:

- Improved models and methods of applying risk adjustment and standard cost to metrics that allow for a fair comparison of provider performance.
- 24 percent reduction in inpatient discharge rate for ambulatory-care sensitive conditions and nine percent lower ER visit rate.
- Use of high-tech imaging reduced by eight percent, and generic drug dispensing rate increased by three percent.
- Three-year cost savings of \$155 million.

This Plan is now building on its medical home program to create stronger relationships between the medical home practices and specialists and hospitals.

A nurse coordinator assigned to a 42 year-old Blue Cross Blue Shield Plan member had noticed that the member had not been to her doctor's office for an exam in a long time.

The nurse coordinator called the member and spent time with her on the phone to ensure that she scheduled an appointment to see her doctor.

During the appointment, the member mentioned recently experiencing chest pain, so the doctor immediately performed an EKG in the office.

Within a few weeks of that appointment, the member had three stents placed.

The member called back her nurse coordinator to say, "Thank you. You probably saved my life."

Recalibrating Hospital Payment to Align with Quality and Efficiency

Responding to rapidly growing inpatient costs—many of which stem from system inefficiencies—hospital-based programs create incentives for hospitals to follow evidence-based practice and comply with industry quality standards. One Blue Plan program puts a portion of participating hospitals' payment at risk and evaluates performance in three categories: hospital efficiencies, infection prevention (which accounts for half of the quality measures), and process-of-care measures. Payments are negotiated based on the level that can be achieved by a given hospital, which chooses the set of quality indicators it will be measured against.

In 2012, the participating hospitals prevented nearly 2,800 adverse events (e.g., improper surgeries and mislabeled specimens) and reduced hospital-acquired infections, deep

vein thrombosis, and pulmonary embolism. The Blue Plan estimates that these quality improvements saved more than 380 lives and averted at least \$48 million in unnecessary treatment costs over a five-year period.

Supporting a System of Accountable Care

Recognizing that a patient's care is often delivered by multiple health care professionals, in the past year the Blues have doubled (to more than 200) the number of programs that extend accountability for quality and cost beyond the primary care or hospital relationship by including primary-care physicians, specialists, and hospitals together in contractual arrangements. In addition to financial incentives tying payment to coordinated care, these models leverage health plan data and analytics and investments in health information systems to equip providers with actionable information at the point of care (such as identifying gaps in care) to improve health outcomes and control costs across the entire care continuum. Moreover, such programs increasingly set a longer-term timeframe (e.g., three to five years) to reach various milestones. This shared-accountability model has succeeded at creating greater value—better medical outcomes while controlling medical costs, as exemplified by the results from one Blue Cross and Blue Shield Plan:

- Significant success at achieving extremely high levels of control for patients with three highly prevalent chronic conditions—diabetes, cardiovascular disease, and hypertension.
- Slower growth in medical spending (two percent and three percent less, respectively, in 2009 and 2010) supports the program's goal of reducing annual health care cost growth trends by half over five years.
- Contracted doctors' costs were 3.3 percent lower in 2010 than for doctors not in the program, an average savings of about \$107 per patient.

- Some doctors' groups spent as much as 10 percent less than colleagues paid under the traditional fee-for-service system.

Benefits and Impact

Value-based payment programs that reward effective, efficient care are reducing costs and improving health outcomes, sometimes dramatically, as in the case of the hospital quality incentive program that is estimated to save 380 lives over five years.

A Blue Cross Blue Shield Plan member was a 57-year-old, self-described “meat and potatoes guy” and diabetic for nearly half his life.

The member was enrolled in a value-based care program that:

- Involves weekly correspondence with a registered nurse.
- Monitors the member's blood sugar levels through patient reporting tool.
- Receives follow-up calls once a week to discuss insulin levels and proper nutrition.

Three months later, the member admits it was hard to make lifestyle changes when he felt fine. But because of the time and attention his nurse gave him and the relationship they built, he was motivated to get his diabetes under control and was able to reduce his blood-sugar levels from an “out of control” 10.7 to a manageable 7.5 (The blood sugar range for a person without diabetes is between 4.2 and 6).

Lessons Learned

Facing continually rising health care costs, businesses are eager to see value-based models grow in scale and impact. And while 24 million Americans are already cared for under Blue value-based payment arrangements, completing a fundamental transformation of the country's \$2.8 trillion health care system takes time and requires alignment and commitment of all stakeholders.

Elevating awareness of value-based care models can help accelerate their nationwide adoption. Together, business leaders and their health plan partners can serve as champions of value-based care by promoting the proven success and future promise of these programs with their peers, employees, business organizations, community groups, media, and policy makers.

Key Take-aways for Employers

Value-based programs provide employers the opportunity to bend the cost trend over time while maintaining or improving quality, delivering superior benefit to their employees, and yielding greater value for their health care spend. Embracing these programs and educating and supporting employees as they participate in them accelerates impactful, sustainable improvement in the health care system.

Improving the Health Care System: Spotlight on Institute for Advanced Health and NantHealth

Overview

With the poorest outcomes and highest cost compared with the rest of the industrialized world, the health care system in the United States is failing. According to a 2014 independent Commonwealth Fund report, the United States ranks last among 11 industrialized countries on health care quality and access, despite having the costliest care. The report ranked the United Kingdom first overall, even though its per-capita health spending is less than half that of the United States.

Health care is a complex adaptive system and a dynamic knowledge enterprise that evolves rapidly over short periods of time. Too often, the knowledge and information generated is not put into practice at the point of care and not made accessible to individuals and their families. In this rapidly evolving era of genomic science and information overload, the need for actionable health information to be more available and accessible is greater than ever.

A transformed health care system will provide the right care to the right patient at the right cost at the right time. This will only be possible, however, if the most up-to-date scientific and personal health information is instantly accessible at the time of need. Achieving this requires an advanced, comprehensive, national health information technology infrastructure for an interoperable, secure, real-time exchange of clinical data. No such infrastructure exists in the United States today.

The Chan Soon-Shiong Institute for Advanced Health (IAH), a nonprofit organization, was established to assemble this national scale, open architecture, data sharing platform (a medical information highway) to support a diverse marketplace of high-quality health care applications. This cloud-based medical information highway provides an open infrastructure for health information to be shared seamlessly across disparate end-user systems, securely. In pursuit of these goals, IAH is creating data centers in Phoenix and Scottsdale dedicated to health information storage, and is funding the development in Phoenix of a dedicated supercomputer for genomic science.

Utilizing this medical information highway, NantHealth has focused its attention on targeting the root cause of poor outcomes and higher costs in the nation, including:

- diagnostic errors⁶⁷
- inappropriate treatments⁶⁸
- inability to keep up with increasingly complex changes in standards of care
- expensive, reactive rather than proactive and preventive care, in high-risk populations with chronic and life-threatening diseases.

IAH and NantHealth believe that actions taken by the CEO Council on Health and Innovation (a “do tank”) will catalyze a commitment by national leaders in philanthropy, academia, government, and the private sector to chart a new course toward health integration for patients in the United States and to share this innovation with the world. IAH and NantHealth re-imagine the way patients, providers, caregivers, and researchers across the nation can securely access actionable health information at the point of care, in the time of need, for the lowest cost—a next-generation Internet for secure health information, transforming complex big data to evidence-based care and a continuously learning

health care system in America—driving the age of cognition to everyday care.

In this highly fragmented U.S. health system, there is a need today for virtual organizations to form and provide coordinated, proactive, evidence based care on a local, regional, and national level. Rather than trying to consolidate health data into physical databases, a virtual patient-centered electronic health record will allow data to be stored locally and to be assembled and accessible in a dynamic fashion.

Institute for Advanced Health and NantHealth's Strategies for Improving the Health Care System

Paving a Medical Information Superhighway

To truly provide high-quality, cost-effective care, the disparate entities involved in the care delivery process must interact more efficiently and effectively. Traditionally, the primary care physician, sub-specialist, laboratory center, and insurer operate as separate institutions, with unrelated and disjointed processes. To improve health care in the United States, these competing entities must dynamically function as one single “virtual” organization designed around and firmly committed to patient interests.

Such organizations are being formed today—accountable care organizations, for example—to address population health management and coordinated care in the era of health care complexity and ever-rising costs. However, currently, even when medical information is in digital

formats, data is not accessible because it resides in different “silos” within and between organizations.

A comprehensive, national health information technology infrastructure is necessary to support these virtual organizations. As researchers argued in a *New England Journal of Medicine* Perspective article, “No Small Change for the Health Information Economy,” this infrastructure should focus on the development of a general-purpose health care computing platform with low barriers to entry rather than on pre-defined end user products. The platform should in turn support a wide variety of health care applications through open architectures. This choice will allow patients, physicians, hospitals, and employers to select the set of applications most appropriate for their local environments.

IAH's medical information highway addresses this challenge through the advanced and proven technology of grid-computing, a technology model designed to promote the coordinated sharing of resources in dynamic, multi-institutional virtual organizations. Grid-computing is particularly well suited to address the complexity of the fragmented health care system.

This infrastructure allows for the interoperable, secure sharing of health care data between institutions that likely have different information systems and policies. The IAH infrastructure is open to third-party end-user applications, including NantHealth applications, which will create a seamless ecosystem of functionalities that together form a distributed “virtual” longitudinal health record platform. Rather than trying to consolidate health data into physical databases, this “virtual” electronic health record will

The IAH infrastructure allows for the interoperable, secure sharing of health care data between institutions that likely have different information systems and policies and is open to third-party end-user applications, including NantHealth applications, which will form a seamless ecosystem of functionalities that together form a distributed “virtual” electronic health record platform.

Through the power of supercomputing and mobile ubiquity, IAH and NantHealth are building the world's first patient-centered, cloud-based "continuous health care learning system" to enable 21st century care for all, and a modern platform for population health management and care coordination across the continuum of wellness to willness (chronic disease) to illness (acute, life-threatening disease).

allow data to be stored locally and to be assembled and accessible in a dynamic fashion.

IAH is working with the National Coalition for Health Integration (NCHI) to design and develop this innovative, groundbreaking infrastructure. NCHI was formed in 2009 to build a public private coalition of health care partners and academia dedicated to transforming health care by enhancing the availability and integration of health information across the country. In 2011, NCHI provided funding to maintain the viability of the National LambdaRail (NLR), a fiber infrastructure for numerous large research projects including users such as NASA, the National Science Foundation and US institutions connecting with the Large Hadron Collider in Switzerland. The NLR fiber infrastructure was designed for basic science and the physics scientific community. There is now an urgent national need to replace this aged infrastructure with a modern fiber network integrated into clinical practices and hospital facilities across the nation, and connected to the NCHI supercomputer in Arizona.

NantHealth's integrated health platform will address each domain of the health system. Its multi-tiered approach of linking technologies, professionals, patients, payers, and the delivery of health services across the nation will transform the health system along four fronts:

- Transitioning population health management to 21st century care
- Decreasing costs, enhancing efficiencies, improving outcomes, and coordinating care
- Increasing access to care
- Enhancing patient-centered care across wellness, "willness," and illness

Benefits and Impact

NantHealth has built the first patient-centered, cloud-based continuous health care learning system for population health and care coordination across the continuum of a patient's life: from (a) acute life-threatening episodes ("illness"); to (b) high-cost chronic co-morbid disease management ("willness"); to (c) the daily maintenance of health and wellness of individuals ("wellness").

NantHealth's Platform Technologies

Building and testing this comprehensive, holistic, patient-centered cloud required the individual development of multiple layers of the ecosystem: NantHealth's platform technologies. From 2005 to 2014, these platform technologies were built and robustly tested, either individually or in combination. This included the innovation and development of:

- Real-time wireless and vital sign health boxes (known as HBoxes) collecting patient vital signs whether at home, hospital or clinic;
- Intelligent wireless sensors capturing critical vital signs remotely;
- A clinical operating system, based on grid-computing, capable of integrating disparate electronic health records, financial systems, inventory systems, and care pathways at a national scale;

- An advanced fiber network enabling the rapid and secure transmission of clinical data;
- Comprehensive cancer databases of clinical protocols, clinical trials, drug efficacies and toxicities, and costs for clinical decision support; and
- Supercomputer systems for real-time genomics and predictive proteomic analysis (in 47 seconds).

These infrastructure platforms are described in more detail in Appendix A.

Wellness Programs: Daily Maintenance of Health and Wellness for Individuals

To support health and wellness of individuals, IAH and NantHealth are building the infrastructure for wireless connectivity and patient portals for the secure, real-time delivery of health information to patient and caregiver. Initiatives in this category include:

1. Launching the HBox in partnership with wireless carriers
2. Launching secure, mobile, patient portals with mobile operators
3. Integrating wearable devices with HBox
4. Providing secure, HIPAA compliant data storage

Willness Programs: High-Cost Chronic Co-morbid Disease Management

Platforms designed to help providers and patients effectively manage chronic conditions are focused on:

1. **Care coordination and reduction in hospital admissions** for patients with chronic comorbid diseases.ⁱ Ongoing

ⁱ <http://nanthealth.com/cos-clinical-operating-system/>

pilots focus on patients who are elderly and frail (UC Irvine), cancer care (IOBS Come Home),ⁱⁱ,ⁱⁱⁱ diabetes and wound care (Wound Technology Network),^{iv},^v reduction in hospital admissions (Providence Health & Services at Saint Johns Hospital),^{vi} and real-time monitoring of heart rate, respiration, and temperature in emergency rooms and the ICU using intelligent wireless sensors (Providence Health & Services at Saint Johns Hospital^{vii} and Hurley Medical Center^{viii})

2. **Infrastructure for automated assessments** and proactive identification of patients likely to be at risk for repeat readmissions, and a care planning and care execution infrastructure for delivering proactive care (UK NHS Trusts in Warrington^{ix} and East Cheshire^x and Providence Health & Services at Saint Johns Hospital)^{xi}
3. **Real-time medication adherence programs** utilizing NantHealth's Vitality GlowCaps^{xii} with health care providers (Healthcare Partners)^{xiii},^{xiv} pharmaceutical companies (Novartis^{xv}), mobile operators^{xvi}, and large employer groups (Bank of America)

ⁱⁱ <http://www.comehomeprogram.com/index.php/nanthealth>

ⁱⁱⁱ <http://finance.yahoo.com/news/innovative-oncology-business-solutions-iobs-211716448.html>

^{iv} <http://www.woundtech.net/expertise-technology>

^v <http://www.microsoft.com/casestudies/Windows-Mobile-6.1/Wound-Technology-Network/Specialty-Practice-Heals-Patients-Faster-with-Mobile-Application-for-Home-Based-Care/4000004328>

^{vi} <https://www.blueshieldca.com/bsca/about-blue-shield/newsroom/nant-100212.sp>

^{vii} <http://www.toumaz.com/sensiumvitals%2%AE-pilot-study#.U9XfsPldUk1>

^{viii} http://www.sensium-healthcare.com/sensiumvitals%2%AE-us#.U9bKd_IdUk0

^{ix} <http://www.ehi.co.uk/news/EHI/8682/warrington-develops-care-coordination>

^x <http://finance.yahoo.com/news/east-cheshire-nhs-trust-selects-154123887.html>

^{xi} <https://www.blueshieldca.com/bsca/about-blue-shield/newsroom/nant-100212.sp>

^{xii} <http://www.vitality.net/products.html>

^{xiii} <http://mobihealthnews.com/8069/study-glowcaps-up-adherence-to-98-percent/>

^{xiv} <http://www.vitality.net/docs/pr%20June%202010%20Partners%20Initial%20Release.pdf>

^{xv} <http://www.specialtypharmacytimes.com/news/Avella-Partners-with-Novartis-to-Boost-Oral-Oncology-Adherence-Rates>

^{xvi} <http://www.att.com/gen/press-room?pid=18878&cdvn=news&newsarticleid=31470&mapcode=>

4. **Delivery of bedside pharmacy services** that reduces risk of readmissions through medication fulfillment
5. **Intelligent decision theater** and remote monitoring (Dartmouth-Hitchcock Health System)

Illness Programs: Acute Life-threatening Episodes

The broadband fiber, supercomputing cloud, decision support engines, and mobile ubiquity have been converged by NantHealth to establish a cloud-based cognitive support platform (“the smart machine era”) to provide advanced 21st century care in the following case studies in progress:

1. **Coordination of care across the United States** through the creation of advanced virtual organizations across 55 practices, 170+ partner companies, 1,200 payers, 2,400 providers and 1,500 users: receiving 80GB of clinical data extracts every day, and handling updates of 50,000 patient charts daily. This system currently stores 21 million patient encounters, 240 million rows of lab results and 220 million rows of service line data and has been in operation since 2008.^{xvii}
2. **Driving cognitive support and evidence-based care** across the United States. More than 60 percent of oncology practices and well over 8,000 oncologists and nurses have adopted this tool, called eviti (www.eviti.com). Health plans have also adopted this tool and eviti will serve as the platform for next-generation molecularly driven clinical decision-making. To date, multiple health plans have launched eviti including WellPoint^{xviii} and Aetna^{xix}. By the end of 2014, a number of states will have adopted this

xvii <http://nanthealth.com/cos-clinical-operating-system/>

xviii “Insurers Push to Rein In Spending on Cancer Care With Costs in Mind, WellPoint Guidelines Aim for ‘Best Drugs, Best Protocols,’” *The Wall Street Journal*. http://online.wsj.com/news/articles/SB10001424052702304587704579588170876612100?mod=Wsj_hp_LEFTTopStories&mg=reno64-wsj

xix http://www.eviti.com/cancer_care/news-releases/aetna-eviti-launch-decision-support-program-cancer-care-effective-efficient/

decision support engine including Georgia, Alabama, Florida, Ohio, California, Colorado, Nevada, Kentucky, Massachusetts, and Nebraska.

- a. In 2013, results were released of a multi-year study performed in association with professionals from Abramson Cancer Center of the University of Pennsylvania and Johns Hopkins Carey Business School. The study showed that 28.7 percent of cancer patients had oncology treatments prescribed that did not conform to evidence-based standards or could not be medically justified. The study also revealed that the cost of the unwarranted components of these treatments averaged \$25,579 per patient. At current annual cancer incidence rates in the US, this translates to more than \$10 billion per year in unnecessary costs that could be significantly reduced by eliminating unwarranted, non-evidence-based cancer treatment.^{xx}

3. **Driving molecularly-driven clinical decisions in cancer care.** A virtual organization of a Cancer Knowledge Action Network, the Cancer Collaborative, has been established for the sharing of genomic and phenotypic data among City of Hope, Childrens Hospital of Los Angeles, Childrens Hospital of Phoenix, Dartmouth-Hitchcock Health System, John Wayne Cancer Institute, Methodist Cancer Center, Providence Health & Services, University of California Davis, University of California Los Angeles Health System, University of Colorado Denver, The University of Texas MD Anderson Cancer Center, The University of Utah. The collaboration of these entities has resulted in astounding findings in a short period of time:

- a. In July 2012, the collaborative collected 6,017 tumor and germline exomes, representing 3,022 cancer patients with 19 unique cancer types. The sample

xx <http://www.marketwatch.com/story/eviti-incs-study-identifies-billions-of-dollars-in-potential-savings-by-eliminating-unwarranted-non-evidence-based-cancer-treatment-2013-06-03>

collection included: 999 breast cancer; 1,156 kidney and bladder cancer; 985 gastrointestinal cancer; 744 brain cancer; 745 lung cancer; 670 ovarian, uterine, and cervical cancer; 436 head and neck cancer; 177 prostate cancer; 70 melanoma cancer; and 35 blood tumor samples. This massive amount of data totaled 96,512 gigabytes. It was transferred and processed via our supercomputing, high-speed fiber network in 69 hours. This overall transfer speed represents a stream of one sample every 17.4 seconds, and the supercomputer analysis for genetic and protein alterations between the tumor and normal sample completed every 47 seconds per patient.

b. In 2014, at the ASCO Annual Meeting, NantHealth presented on the rapid molecular analysis of more than 10,000 tumor and germline whole exomes from 5,000 patients across more than 20 cancer tissue types, concluding—in stark contrast to widely held medical assumptions today—that the molecular signature of a cancer patient is independent of the anatomical tumor type. The finding suggests, for example, that a hypothetical breast cancer patient could potentially have more in common with a lung cancer patient than another person with the same “type” of cancer.^{xxi}

c. In 2014, results of a collaborative study between OncoPlex Diagnostics,^{xxii} Vall d’Hebron Institute of Oncology (VHIO), and Memorial Sloan Kettering Cancer Center, defined for the first time that a quantitative HER2 protein level measured by mass spectrometry is associated with longer disease free and overall survival in patients receiving anti-HER2 treatment.^{xxiii}

This is the nation’s first demonstration of quantitative measurements of cancer proteins from human tissue and the study demonstrated that a breast cancer mutation HER2 could be quantitatively measured and shown to be predictive of improved response to anti-HER2 therapy in breast cancer.

d. Providence Health, NantHealth and the Chan Soon-Shiong Institute of Molecular Medicine partnered in August 2014 to create the country’s first health network for clinical whole genomic sequencing. This health network spans 5 western states and serves 22,000 new cancer patients and 100,000 cancer cases per year. The partnership is installing an Illumina HiSeq X Ten sequencing system to enable the nation’s first clinical whole genome sequencing paired with RNA-seq sequencing and proteomics.

Lessons Learned

The discovery of “the God particle” (in the Large Hadron collider project) involved the collaboration of hundreds of physicists across the globe, collaborating in real-time by analyzing millions of bits of data. This achievement occurred through the creation of virtual organizations committed to a common cause, utilizing grid-computing and an information highway (the National LambdaRail) created for large science projects. This is the inspiration for IAH’s and NantHealth’s medical information highway and cloud-based, supercomputing, cognitive support engine.

Very much like the billions of atoms in the universe, the biology of a human being involves millions of protein interactions. In order to establish a continuous health care learning system, which could address real-time management of patient care, technology platforms had to be built. IAH and NantHealth embarked on building these technology platforms, testing the platforms individually and then integrating the platforms into a common, holistic medical information system.

^{xxi} <http://nanthealth.com/press-releases/7422/>

^{xxii} www.oncoplexdx.com

^{xxiii} <http://www.streetinsider.com/Press+Releases/HER2+Quantitation+by+OncoPlex+Diagnostics+Mass+Spectrometry+Predictive+of+Improved+Response+to+Anti-HER2+Therapy+in+Breast+Cancer/9633452.html>

These exhaustive disparate health platforms have never been integrated at a national and global scale. Only when they are integrated into a holistic system (the medical information highway enabling cognitive support), can the country hope to address the root cause of its failing systems, change outcomes, and reduce costs. IAH and NantHealth are answering this call to action.

For more details about some of IAH's and NantHealth's initiatives, please see Appendix A.

Improving the Health Care System: Spotlight on McKinsey & Company

Overview

McKinsey & Company has worked with a range of health plans and health systems around the world to improve operations, increase efficiency, and develop and implement innovative approaches to health care payment and delivery. Its goals are to help these organizations strengthen their financial sustainability, encourage the delivery of higher-quality, higher-value care, and improve the health of societies as a whole.

McKinsey Insights on Strategies for Improving the Health Care System

McKinsey's work to improve health care payment and delivery is extensive, ranging from helping private and public payers design and implement innovative, value-based reimbursement models, to helping health care providers make the fundamental shifts required to improve their efficiency and the quality of care delivered.

McKinsey has invested heavily in analytics tools, proprietary datasets, knowledge, and other intellectual capital to support this work. It conducts extensive research into the problems faced by payers, providers, and patients, and it shares the knowledge gained to promote learning and improvement efforts both within individual health care systems and across the health care systems of different countries. Each year, McKinsey's health care practice invests heavily in research designed to support its clients on the most important issues facing the health care industry, and help establish a fact base for the industry and the public at large. These investments have enabled McKinsey to continue to innovate and increase its impact.

In addition, the firm has established a number of new groups that provide a deep level of focus and expertise. For example, the *McKinsey Advanced Healthcare Analytics (MAHA)* group helps payers use big data analytics and conduct sophisticated actuarial analyses to understand book-of-business profitability and its evolution, maximize their customer acquisition and retention results, and optimize their products and pricing. Another group, *Health Care Value Analytics (HCVA)*, has developed a series of comparative analyses of the total cost of care for a population of patients. These analyses are used by McKinsey clients and client service teams to design and test new payment models and set priorities for clinical improvement.

These capabilities have been used to support many health care stakeholders in their transition to value-based models. For example, McKinsey worked with a large health system, a local employer group, a payer, and a physician group to develop and pilot a new approach to health care payment and delivery. The goal was to see whether the creation of an ACO would hold down health care costs of members of a large employer group, while improving the quality of care. The firm also worked with the employer group to help it optimize, manage, and expand the ACO model to other regions.

In another example, McKinsey is working with a U.S. state government, along with the payers, providers, and employers in that state, to move health care payments from a fee-for-service system that rewards activity to an outcomes-based reimbursement system that pays for value through a combination of episode-based and population-based payment models. The episode-based model is based on retrospective payments for more than a dozen acute episodes of care (making one provider accountable for the total quality and cost of each episode of care). Prospective bundled payments are used for patients needing long-term services and supports and for people with developmental

disabilities. Population-based models include an at-scale, multi-payer patient-centered medical home (PCMH) to provide preventive services and better manage care of the chronically ill, as well as health homes for the frail elderly, “dual eligibles” (patients covered under both Medicare and Medicaid), and severely and persistently mentally ill patients.

Impact

The implementation of new payment and delivery models can yield positive results. For example, in its first year, the ACO developed through the employer group exceeded its goal of \$15 million in savings. By the end of its second year, total savings had reached \$37 million. The ACO reduced patient readmissions by 15 percent and achieved a half-day reduction in average patient length-of-stay. Both the employer group and the payer have since implemented the ACO approach in several other regions of the state.

In the U.S. state, the program is being implemented at scale. During the initial wave of episodes (spanning more than 15 percent of total spend), the payments being made to more than 3,000 hospitals, physicians, and mental health professionals are predicated on results achieved. Initial evidence from the first year of this effort suggests that it has already achieved favorable impact against key quality and/or resource utilization metrics.

Lessons Learned

The level of change required to comprehensively address rising health care costs and quality concerns can best be

achieved through multi-stakeholder coalitions that include employer input. For example, getting everyone on board with the creation of the ACO described above required the engagement of many stakeholders representing different parts of the system, including payers, providers, employers, and consumers. The employer group played a central role in aligning incentives to bring everyone together.

In the U.S. state, significant collaboration among stakeholders was central to success. The state's Medicaid system and private payers had to agree on a single portal for clinical data entry and a common report design for provider cost, quality, and utilization. They also had to align on the design of a new value-based reimbursement model, one that offers providers both gain-sharing and risk-sharing incentives, depending on whether their performance was above or below certain thresholds. Thousands of providers throughout the state had to give input on how their performance would be measured.

Key Take-aways for Employers

Employers have an opportunity to work with the payers and providers in their markets to accelerate efforts to improve the quality and cost-efficiency of care delivery, as well as the outcomes achieved. For example, they can encourage new care delivery and payment approaches that focus on value rather than just volume. In addition, they can use their influence to help increase the alignment between payers and providers, whether by encouraging transparency, altering the incentives they offer to both groups, or simply “being at the table.”

Improving the Health Care System: Spotlight on Verizon Communications

Overview

Health IT plays a critical and foundational role in efforts to improve the quality, safety, and efficiency of care. Electronic health records (EHRs) and other software, combined with electronic information-sharing, enable clinicians and the entire care team, including health plans, hospitals, laboratories, and pharmacies, to share information with each other and the patient to support well-informed, higher-quality, coordinated, and convenient care. Applying analytics to electronic data sets improves the overall health of populations by helping to determine which treatments are most effective for particular conditions and patient populations, identify and predict public health threats and safety issues, and develop new therapies that address deadly and debilitating diseases. Analysis of data can also support reductions in the overall cost of health care by helping to detect and prevent fraud and abuse.

New technologies also help individuals navigate their health and health care. Nearly every American is now online—whether through a computer, digital tablet, or mobile phone.^{69,70} Increasingly, Americans are using these mobile and online tools to access educational resources; track their exercise and food intake or blood pressure and medication adherence; connect with communities online to share insights; and interact with the health care system. Increasingly, individuals are communicating with their clinicians using email, engaging in “virtual visits” or online care when a face-to-face visit is not needed, and connecting with their clinicians from home through remote monitoring systems.

Verizon recognizes the value that health IT and other online tools bring to health and health care and has taken actions as both an employer and a technology provider to bring these tools into the hands of clinicians and patients.

Verizon’s Strategies for Improving the Health Care System

Verizon offers its employees and their dependents more flexible, convenient, and effective ways to seek and receive care through the use of online technology. Sometimes called telehealth or online care, this new kind of doctor-patient interaction will continue to grow in use and popularity.

Verizon is also tackling many of the challenges associated with the use of health care technology to improve care, including enabling the convergence of biometric and medical device applications, EHRs and other clinical software, and consumer-facing tools through a remote monitoring platform to improve the quality, cost, and patient experience of care. Each of these innovative strategies is described in further detail below.

Bringing Online Care to Verizon Employees and Their Families

Verizon employees who have a health question or a common health problem do not necessarily have to contact or visit their doctor anymore. With LiveHealth Online™, in partnership with Anthem Blue Cross and Blue Shield, Verizon offers workers an Internet-based communications tool to facilitate health care services. Once they have enrolled, users can choose an Anthem-approved doctor located in the user’s state and connect with him or her using a two-way video service, enabling a face-to-face conversation between doctor and patient. Just like an actual visit to the doctor’s office, this online visit is a covered benefit, and users pay only what they would pay at a regular office visit.

While this service is not appropriate for emergencies, employees are encouraged to use the service whenever they have a non-life-threatening health concern and do not want to wait to see a doctor. Some of the most common uses include people with cold and flu symptoms such as a cough, fever and headaches; problems with allergies; sinus infections; and family health questions.

Doctors can review patients' health history, answer questions, and in several states may even be able to prescribe medications. Detailed records of the session can be sent directly to the patient's regular doctor.

Mobile Health Product Enhances Patient Access to Clinician Visits

Verizon has launched a cloud-based, enterprise-class mobile health product for health systems, health plans and employers to make a clinician visit more convenient and cost-effective for their patient and member populations. Verizon Virtual Visits helps reduce visits to the emergency room for non-urgent care—estimated to run \$4.4 billion in 2014 alone. In addition, the product also enables patients, who may not otherwise have convenient and timely access to care, to see a clinician for simple conditions.

Verizon Virtual Visits connects patients online with a clinician through a secure app on their smartphone or tablet, or via a Web portal. Once logged in, patients are taken through a set of health-related questions followed by a discussion with a clinician, who evaluates the patient's condition and provides an appropriate care plan. Clinicians can use the platform to electronically send a prescription to the pharmacy of the patient's choosing, where legally permitted. Data shared between the clinician and the patient is encrypted during the online visit, as well as afterward when the data is stored in Verizon's HIPAA-enabled Cloud.

With Verizon Virtual Visits, health systems can benefit from reducing the burden on clinical staff by enabling them to see patients remotely, while health plans can help satisfy members, particularly younger generations, who are increasingly demanding more convenient and less costly options for care. Verizon Virtual Visits can also benefit employers by helping to reduce the time employees take off from work to seek care for themselves and their families.

Identity and Access Management System

The use of IT in health care requires the identification and authentication of clinicians and other members of the care team before they can access a patient's health records electronically. Verizon's Universal Identity Services is a cloud-based solution that reduces the risk of identity fraud with high-assurance identity credentials that are simple for providers to use and integrate with existing health care technologies.

Benefits and Impact

Several studies have shown that health IT, if effectively designed and implemented, has a positive impact on patient safety, the efficiency and effectiveness of care, and patient and provider satisfaction.⁷¹

Online care enables access to care when it would otherwise not be easily available. It also improves convenience for patients. Patient satisfaction scores for LiveHealth Online are high—over 90 percent—and 90 percent of users say it saves time. Importantly, 85 percent of users say they were able to completely resolve their medical issue by using this service. Data show that 55 percent of online visits to LiveHealth Online have required a prescription. The implications for improved health, lower costs, reduced absenteeism, and greater productivity are also significant. Remote home monitoring systems have also been shown to improve health outcomes and reduce costs.⁷²

Lessons Learned

Despite federal investments and increasing levels of adoption of EHRs among hospitals (44 percent) and office-based physicians (40 percent), the level of interoperability and information-sharing across disparate systems remains low.^{73,74} Employers can play a key role in promoting electronic information-sharing across providers and interoperability across systems to support higher-quality, more cost-effective, coordinated care.

The widespread adoption of online care is hampered by laws and policies regarding telehealth visits and

prescription-writing that differ from state-to-state. Many states place restrictions on providing care in states where a physician is not licensed to practice. In addition, many states require a pre-existing provider-patient relationship in order for a valid prescription to be written. Currently LiveHealth Online providers in 38 states can issue prescriptions (out of 44 states that offer the service). As telehealth visits become more broadly used, these laws and policies will need to be updated to accommodate the growing demand for these efficient services. Verizon supports federal legislation and efforts to adopt a state telemedicine compact that removes legal barriers.

Accessing health care information across disparate systems is a major challenge across the entire health care ecosystem often impacting the quality and cost of care. Providers require immediate access to comprehensive and accurate patient information at the point of care, while at the same time meeting the requirements of the Health Insurance Portability and Accountability Act (HIPAA) and other key regulations. Patients understand the need to have their personal health information available where and when they seek treatment, but they are wary of data breaches and data inaccuracies.

Verizon Universal Identity Services is a cloud-based managed service that uses multi-factor authentication to help verify that users are who they say they are. Once authenticated by the service, users can securely access online content such as websites, corporate resources and even electronic medical records from a computer, smartphone or tablet.

Combining an individual's username-password with a computing device that generates a one-time password, Universal Identity Services is designed to meet the Level 3 authentication requirements created by the National Institute of Standards and Technology (NIST). This is an alternative to traditional solutions and provides a fast, flexible and secure way for health care organizations to implement multi-factor authentication while also helping health care organizations address their complex challenges of protecting patient information and minimizing fraud.

By simplifying and standardizing the authentication experience, Universal Identity Services can be used to enable a wide range of activities across the health care ecosystem. It can:

- Authenticate health care provider identities according to strict NIST standards.
- Give providers flexible, efficient, secure access to e-prescribing applications and electronic medical records.
- Decrease time spent on logging into various systems enabling providers to focus on direct patient care.
- Assist health care organizations with addressing applicable security requirements for strong authentication.
- Reduce the risk of identity fraud, helping to maintain patient privacy, manage costs, and protect brand reputation.

Key Take-aways for Other Employers

To help address escalating health care costs, employers will continue to look for innovative and lower-cost solutions, including those that leverage technology.

New technologies, along with cloud computing and enhanced data storage capabilities, will help providers manage their patient base more comprehensively, especially in collaboration with other physicians treating the same patients; help patients decide on the best and most cost-effective treatment options; connect clinicians with their patients when a face-to-face visit is not feasible or needed, to improve access to and convenience of care; and safely store larger amounts of health information for use in clinical decision support at the point of care.

By partnering with health plans to communicate expectations about the importance of provider adoption of EHRs and electronic information-sharing and reinforcing such messages through incentive structures, employers can play a critical role in advancing the development of the much-needed electronic information infrastructure required for transforming the U.S. health care system.

Also, by leveraging online, mobile, and other electronic tools to engage individuals in their health and health care and improve their connections to the health care system, employers can improve outcomes in both cost and quality.



Health Program

Health Innovation Initiative



Appendix A: Initiatives of the Institute for Advanced Health and NantHealth

Overview

With the poorest outcomes and highest cost compared with the industrialized world, the health care system in the United States is failing. According to a 2014 independent Commonwealth Fund report, the United States ranks last among 11 industrialized countries on health care quality and access, despite having the costliest care. The report ranked the United Kingdom first overall, even though its per-capita health spending is less than half that of the United States.

Health care is a complex adaptive system and a dynamic knowledge enterprise that evolves rapidly over short periods of time. Too often, the knowledge and information generated is not put into practice at the point of care and not made accessible to individuals and their families. In this rapidly evolving era of genomic science and information overload, the need for actionable health information to be more available and accessible is greater than ever.

For example, the Institute of Medicine (IOM) report on “Delivering High Quality Cancer Care” describes the delivery of cancer care in the country as a “System in Crisis.”⁷⁵ The report notes that complex new life-saving treatments may be unavailable to patients in communities that the community who lack access to sophisticated next generation tests and clinical trials. The vast majority of cancer care is delivered by community oncologists. This disparity in care means that important cancer advances will not reach the majority of patients in desperate need for them.

A transformed health care system will provide the right care to the right patient at the right cost at the right time. This will only be possible, however, if the most up-to-date scientific and personal health information is instantly accessible at the time of need. Achieving this requires an advanced, comprehensive, national health information technology infrastructure for an interoperable, secure, real-time

exchange of clinical data to provide cognitive support and avoid diagnostic errors and inappropriate treatment at the point of care. No such infrastructure exists in the United States today.

The Chan Soon-Shiong Institute for Advanced Health (IAH), a nonprofit organization, was established to assemble this national scale, open architecture, data sharing platform (a medical information highway) to support a diverse marketplace of high-quality health care applications. This cloud-based medical information highway provides an open infrastructure for health information to be shared seamlessly across disparate end-user systems, securely. In pursuit of these goals, IAH is creating data centers in Phoenix and Scottsdale dedicated to health information storage, and is funding the development in Phoenix of a dedicated supercomputer for genomic science.

Utilizing this medical information highway and cloud-based supercomputing cognitive platform, NantHealth has focused its attention on targeting the root cause of poor outcomes and higher costs in the nation, including:

- diagnostic errors⁷⁶
- inappropriate treatments⁷⁷
- inability to keep up with increasingly complex changes in standards of care
- expensive, reactive rather than proactive and preventative care, in high-risk populations with chronic and life-threatening diseases.

IAH and NantHealth believe that actions taken by this CEO Council on Health and Innovation (a “do tank”) will catalyze a commitment by national leaders in philanthropy, academia, government, and the private sector to chart a new course toward health integration for patients in the United States and to share this innovation with the world. IAH and NantHealth re-imagine the way patients, providers,

caregivers, and researchers across the nation can securely access actionable health information at the point of care, in the time of need, for the lowest cost—a next-generation Internet for secure health information, transforming complex big data to evidence-based care and a continuously learning health care system in America—driving the age of cognition to everyday care.

Institute for Advanced Health and NantHealth's Strategies for Improving the Health Care System

Background: The Urgent Need for a Medical Information Highway and Launching Advanced Health Care Virtual Organizations

Access to the quality and affordable health care they deserve is too often a tedious process for the patient. A patient is referred by his primary care physician to a sub-specialist. The sub-specialist orders tests that require the patient to have blood drawn at one laboratory facility and an X-ray at an imaging center, with each group sending bills to the patient's insurer. Often, the patient does not understand what he is paying for, either directly or indirectly.

Such complex chains of interactions are the unfortunate norm in the health care system of today. To truly provide high-quality, cost-effective care, the disparate entities involved in the care delivery process must interact more efficiently and effectively. Traditionally, the primary care physician, sub-specialist, laboratory center, and insurer operate as separate institutions, with unrelated and disjointed processes. To improve health care in the United States, these competing entities must dynamically function as one single "virtual" organization designed around and firmly committed to patient interests.

Through the power of supercomputing and mobile ubiquity, IAH and NantHealth are building the world's first patient-centered, cloud-based "continuous health care learning system" to enable 21st century care for all, a cognitive engine in the "smart machine era" providing a modern platform for population health management and care coordination across the continuum of wellness to willness (chronic disease) to illness (acute, life-threatening disease).

Health care is a dynamic knowledge enterprise that evolves rapidly over short periods of time. Too often, the knowledge and information generated is not put into practice at the point of care and not made accessible to individuals and their families. What is needed is a comprehensive, national health information technology infrastructure. As researchers adroitly argued in a *New England Journal of Medicine* Perspective article, "No Small Change for the Health Information Economy" this infrastructure should focus on the development of a general-purpose health care computing platform with low barriers to entry rather than on pre-defined end user products. The platform should in turn support a wide variety of health care applications through open architectures. This choice will allow patients, physicians, hospitals, and employers to select the set of applications most appropriate for their local environments.

In this highly fragmented and uncoordinated U.S. health system, *there is a need today for virtual organizations to form and provide coordinated, proactive, evidence-based care on a local, regional, and national level.* A virtual organization is a set of individuals and/or institutions engaged in the controlled sharing of resources and data in pursuit of a common goal. Such organizations are being formed today (ACOs) to address population health management and coordinated care in the era of health care complexity and ever-rising costs. *However, currently, even*

The IAH infrastructure allows for the interoperable, secure sharing of health care data between institutions that likely have different information systems and policies and is open to third-party end-user applications, including NantHealth applications, which will form a seamless ecosystem of functionalities that together form a distributed “virtual” electronic health record platform.

when medical information is in digital formats, data are not accessible because they reside in different “silos” within and between organizations. IAH's medical information highway addresses this challenge through the advanced and proven technology of grid-computing.

Grid-computing is a technology model designed to promote the coordinated sharing of resources in dynamic, multi-institutional virtual organizations. Grid-computing focuses on the loose coupling of data and services. This approach allows different institutions to come together to achieve a particular goal while still maintaining local autonomy in issues ranging from information system architecture to institutional policy to patient privacy. This flexibility and focus on controlled sharing makes grid-computing particularly well suited to address the complexity of the fragmented health care system.

This infrastructure allows for the interoperable, secure sharing of health care data between institutions that likely have different information systems and policies. The IAH infrastructure is open to third-party end-user applications, including NantHealth applications, which will form a seamless ecosystem of functionalities that together create a distributed “virtual” longitudinal health record platform. Rather than trying to consolidate health data into physical databases, this “virtual” electronic health record will allow data to be stored locally and to be assembled and accessible in a dynamic fashion.

Paving a Medical Information Superhighway

IAH is working with the National Coalition for Health Integration (NCHI) to design and develop this innovative, groundbreaking infrastructure.

NCHI was formed to build a public private coalition of health care partners and academia dedicated to transforming health care by enhancing the availability and integration of health information across the country. In 2011, NCHI provided funding to maintain the viability of the National LambdaRail (NLR), a fiber infrastructure for numerous large research projects including users such as NASA, the National Science Foundation and US institutions connecting with the Large Hadron Collider in Switzerland. The NLR fiber infrastructure was designed for basic science and the physics scientific community. There is now an urgent national need to replace this aged infrastructure of the NLR with a modern fiber network integrated into clinical practices and hospital facilities across the nation and connected to the NCHI supercomputer in Arizona.

IAH was established in 2011 with core funding from Dr. Patrick Soon-Shiong and his wife Michele B. Chan, who have pledged through their family foundation more than \$1 billion for health care and health information projects. The Institute currently operates in both California and Arizona and is exploring relationships with other states. In March 2011 it announced the funding of data centers in Phoenix and Scottsdale dedicated to health information storage, and also the funding of a dedicated supercomputer for genomic science in Phoenix.

Addressing a Non-System of Care

There is an urgent need to address the ever-increasing complexity of medical decision-making. *The deluge of data and the inability for both patient and provider to extract and apply actionable information in real-time, compounds the problem of the nation's disaggregated, dangerous non-*

system of care, leading to ever increasing and unsustainable costs. Too often, the knowledge and information generated is not put into practice at the point of care and not made accessible to individuals and their families. *This root cause of poor outcomes and high cost has not been directly addressed.* All parts of this health ecosystem must be objectively measured so that patients, providers and payers can achieve better access, better safety and better outcomes, all at lower cost, in real time. No such infrastructure exists on a national scale for health care.

In this rapidly evolving era of genomic science, there is an even greater need for complex health information to become more understandable, actionable, available and accessible.

If the health care system is to be transformed, the most up to date scientific and personal health information must be accessible at time of need. In order to achieve this, what's needed is a comprehensive, national health information technology infrastructure for interoperable, secure, real-time data exchange. NantHealth's decision support tool, *eviti*, is the first comprehensive cloud-based platform built to facilitate high-quality cancer care and address this cancer system in crisis.ⁱ

Strategic Initiatives

Over the past decade, the National Coalition for Health Integration, the Chan Soon-Shiong Institute for Advanced Health, and NantHealth has identified four fundamental pillars necessary for a truly successful transformation of health care:

- A national, coordinated and integrated health delivery system that focuses on the needs of the patient, providing the right care, in the right place, at the right time.

- Outcome-driven, evidence-based treatment that provides predictive, personalized, measurable results for patients.
- A national health information infrastructure that's truly interoperable. Such an infrastructure would connect care providers and patients, whether they are at home or a community-care center or hospital.
- A value-based payment system that aligns providers' financial incentives and objectives with the patient's real needs. Fee-for service results in perverse incentives with no reward for proactive, preventative care.

In this highly fragmented U.S. health system, there is a need today for virtual organizations to form and provide coordinated, proactive, evidence based care on a local, regional, and national level. Rather than trying to consolidate health data into physical databases, a "virtual" patient-centered electronic health record will allow data to be stored locally and to be assembled and accessible in a dynamic fashion.

NantHealth's integrated health platform will address each domain of the health system. Its multi-tiered approach of linking technologies, professionals, patients, payers, and the delivery of health services across the nation will transform the health system along four fronts:

- **Transitioning population health management to 21st century care:** Creating a model of 21st century care that is patient-centered, data-driven, evidence-based and integrates research and clinical practice into a continuum that will allow for the provider to exercise personalized medicine in the era of genomics and proteomics. The United Kingdom and Genomics England has taken the lead in this endeavor.ⁱⁱ

ⁱ [http://www.oncologypractice.com/index.php?id=6016&type=98&tx_ttnews\[tt_news\]=140133&cHash=da03e20e36](http://www.oncologypractice.com/index.php?id=6016&type=98&tx_ttnews[tt_news]=140133&cHash=da03e20e36)

ⁱⁱ <https://www.youtube.com/watch?v=ZYkplV6U44M>

- **Decreasing costs, enhancing efficiencies, improving outcomes, and coordinating care:** Providing actionable health data to the patient, the provider, and payer at the point of care and time of need that will decrease costs, improve outcomes, and increase efficiency through the early detection and prevention of disease, increased transparency in costs, administrative streamlining and improved coordination of care from the hospital to the clinic to the home.
- **Increasing access to care:** Reducing disparities in care and variations in access to high-quality health resources by leveraging technologies such as low-cost telehealth that increase access in underserved urban and rural areas as well as in primary care specialties such as pediatrics where access to neonatologists and pediatricians is deficient.
- **Enhancing patient-centered care across wellness, willness, and illness:** The Institute and NantHealth network open architecture enables the assembly of patient-centered data longitudinally over time, with the patient as the starting point. The patient-centered integrated health record is a self-assembly of dynamically changing health information (vital signs, labs, imaging, and omic data) secured and utilized over the lifetime of the patient and their care-givers to maintain health rather than provide mere episodic treatment of disease. Information is drawn from the silos where it currently resides and self-assembles around the needs of individuals. Initiatives in motion are described below.

NantHealth Programs for Wellness, Willness, and Illness (2008-present)

Introduction

At the core of the health system are billions of individual pieces of information that must be glued together to form everything from longitudinal health records, real-time vitals data from the patients and records of patient treatment to research databases. Information needs to be linked

across the myriad of data systems, needs to incorporate paper records, and must be done in a secure and privacy-preserving manner. Furthermore, these connections must endure, lasting decades into the future. Naming and linking are the fundamental operations upon which a robust and national scale health information infrastructure can be built. For example, images produced by an imaging facility must be connected to genetic profiles. New, and as yet unknown, diagnostic data must be connected to existing health records. Payment records must be connected with diverse and distributed patient encounters. New information is continuously being published throughout the system.

This report provides an outline to the extensive programs in motion across the continuum of care that NantHealth and its collaborators have been undertaking from 2008 to the present. Details of these case studies will be provided in an updated report and links are provided below for further information. NantHealth has built the first patient-centered, cloud-based continuous health care learning system for population health and care coordination across the continuum of a patient's life: from (a) acute life-threatening episodes ("illness"); to (b) high-cost chronic co-morbid disease management ("willness"); to (c) the daily maintenance of health and wellness of individuals ("wellness").

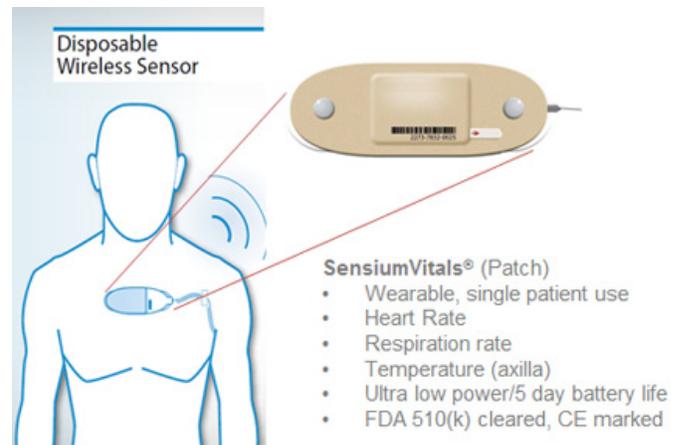
Testing of NantHealth's Platform Technologies

The strategy employed to build and test this comprehensive, holistic, patient-centered cloud required the individual development of multiple layers of the ecosystem: NantHealth's platform technologies. From 2005 to 2014, these platform technologies were built and robustly tested, either individually or in combination. This included the innovation and development of: real-time wireless and vital sign health boxes collecting patient vital signs whether at home, hospital or clinic; intelligent wireless sensors capturing critical vital signs remotely; a clinical operating system capable of integrating disparate electronic health records at a national scale; an advanced fiber network

enabling the rapid and secure transmission of clinical data; comprehensive cancer databases for clinical decision support; supercomputer systems for genomics and proteomic analysis. These infrastructure platforms are described in bullets A-I, below.

A. Real-time Wireless Biometric and Vital Sign Health Boxes (HBoxes) from hospital to home are installed on a national scale. Device connectivity is now operational at more than 250 hospitals, including 120 EPIC sites, connecting more than 6,000 medical devices and capturing three billion vital signs annually.^{iii, iv} HBoxes are being certified with wireless carriers and deployed in homes for wireless connectivity with biometric devices.^v

B. Intelligent Wireless Sensors (SensiumVitals):^{vi} SensiumVitals™ is a wireless, wearable, FDA (510k) cleared medical device, with smart sensor interface and transceiver, aimed at the emergency rooms, ICUs, and wards of hospitals. This ultra-low power, small device is a disposable thin patch attached to patients under their clothing using conventional ECG pre-gelled electrodes.^{vii}



C. NantHealth's Intelligent Clinical Operating System (COS)^{viii} can identify all of these billions of single pieces of information by a method that is reliable, scalable and, most importantly, secure. COS is capable of connecting current systems, including regional health information exchanges (HIEs) and electronic medical records (EMRs), at a national scale. COS is driving value-based care across 150 practices, integrating 50 individual systems, managing 3.3M patient records across 22 EMRs, with real-time data feeds of 50GB per day. This is the first cloud-based operating system of its kind in health care that is based on supply-chain principles and grid-service-oriented architecture, that integrates the knowledge

iii <https://www.youtube.com/watch?v=78cCGPSeYxg>
 iv <http://finance.yahoo.com/news/isirona-debuts-deviceconx-4-0-124500733.html>
 v <http://nanthealth.com/products/deviceconx-isirona/>

vi <http://www.sensium-healthcare.com/sensiumvitals%C2%AE-system#.U9Xf1fldUk0>
 vii <http://www.toumaz.com/sensiumvitals%C2%AE-pilot-study#.U9XfsPldUk1>
 viii <http://nanthealth.com/cos-clinical-operating-system/>



base (21st century best care), with the delivery system (coordinated integrated care), and the payment system (highest quality at lowest cost).

D. **Advanced Fiber Network** is connected across the nation to the supercomputer in Arizona. This network began with the National LambdaRail (NLR), a fiber infrastructure designed for basic science and the physics scientific community. The IAH is integrating a modern fiber network into clinical practices and hospital facilities across the nation.

E. **Cancer Decision Support Engine as a SAAS tool** is providing real-time access to more than 1,700 evidence-based oncology treatment regimens and a library of thousands of ongoing clinical trials; currently used by more than 60 percent of American oncologists equating to 32 million covered lives.^{ix}

F. **The Nation's First Comprehensive Molecularly Driven Clinical Decision Platform⁷⁸** is operational, deriving insight from DNA to Protein to Peptide to Drug in near real-time, before clinical treatment begins. In July 2012, the IAH scientific team collected 6,017 tumor and germline exomes, representing 3,022 cancer patients with 19 unique cancer types. This massive amount of data totaled 96,512 gigabytes and was successfully transferred and processed via the Institutes' supercomputing, high-speed fiber network in 69 hours. This overall transfer speed represents a stream of one sample every 17.4 seconds, and the supercomputer analysis for genetic and protein alterations between the tumor and normal sample completed *every 47 seconds per patient*. Given the nation's estimated cancer rate of 1.7 million new cases in 2012, this infrastructure now brings the capability of analyzing 10,000 patients per day. By 2013, this library grew to more than 16,000 cancer genomes processed. In 2014, NantHealth reported the first fully integrated genomic, transcriptomic super computing engine for

ix www.eviti.com

cancer at ASCO, with rapid molecular analysis of more than 10,000 tumor and germline whole exomes from 5,000 patients across more than 20 cancer tissue types.

- G. Monitoring Cancer from the Blood (“Liquid Biopsy”):** In 2013, IAH scientists demonstrated the nation’s first ability to retrieve circulating tumor cells, based on their physical characteristics from the blood in patients with metastatic pancreatic cancer while on chemotherapy. This capability of retrieving cancer cells from the blood (one in a billion circulating cells) revolutionizes the capability of monitoring patients with cancer- before the diagnosis, during treatment, and after the treatment. Combined with the revolutionary integration of genomics and proteomics we now have tools for the first time to move at the speed of change, matching that of the cancer cell- a technology that has eluded us thus far in the quest to cure cancer.
- H. Next Generation Imaging: Qi Imaging** offers an unprecedented “real-time” journey through the body non-invasively, supporting applications such as precise surgical and radiation therapy planning for a wide variety of organ targets—brain, lungs, heart, and beyond. PhyZiodynamics, an advanced 4D processing system, allows the automated registration of DICOM-based modality images into true fidelity 3D and 4D organ data sets that can be interactively interrogated throughout the entire structure while either still or in motion. The inVivo Viewer delivers unprecedented visual acuity and functional analysis of multimodality imaging parameters. It also enables highly accurate motion coherence and reproducible functional analytics providing the gateway to next generation imaging analytics.^x
- I. Mobile Videoconferencing (iVisit):** A mobile Internet-based video-conferencing protocol has been developed (iVisit). This system has been extensively deployed for the management of chronic wound care, with significant cost savings and better outcomes. Wound Technology Network has deployed this system in Florida and California.

Summary of Current Undertakings and Achievements (2008-Present)

Introduction

IAH and NantHealth are focused on fusing three fundamental aspects of health care reform: providing modern care, accessible care, and patient-centered care into the future standard level of care for patients. The pressing issues facing the nation’s health care could be measurably transformed and effectively addressed, through:

- Coordination of Evidence-based Care for High-Risk Chronic Disease
- Population Health Management across the spectrum of the population subtypes covering “Wellness” (wireless connectivity), “Willness” (chronic co-morbid disease management and transition of care) and “Illness” (cancer, life-threatening diseases and end of life care)
- Remote monitoring and real-time cloud-based decision support

Wellness Programs: Daily Maintenance of Health and Wellness of Individuals

Building the infrastructure for wireless connectivity and patient portals for the secure, real-time delivery of health information to patient and caregiver.

1. Launching the **HBox** in partnership with wireless carriers
2. Launching secure, **mobile, patient portals** with mobile operators
3. Integrating **wearable devices** with HBox
4. Providing secure, **HIPAA compliant data storage**

^x <http://qiimaging.com/phyziodynamic.html>

Willness Programs: High-Cost Chronic Co-morbid Disease Management

Platforms designed to help providers and patients effectively manage chronic conditions are focused on:

- Care coordination and reduction in hospital admissions** for patients with chronic comorbid diseases.^{xi} Ongoing pilots focus on patients who are elderly and frail (UC Irvine), cancer care (IOBS Come Home)^{xii, xiii}, diabetes and wound care (Wound Technology Network)^{xiv, xv}, reduction in hospital admissions (Providence Health & Services at Saint Johns Hospital)^{xvi}, and real-time monitoring of heart rate, respiration, and temperature in emergency rooms and the ICU using intelligent wireless sensors (Providence Health & Services at Saint Johns Hospital^{xvii} and Hurley Medical Center)^{xviii}
- Infrastructure for automated assessments** and proactive identification of patients likely to be at risk for repeat readmissions and a care planning and care execution infrastructure for delivering proactive care (UK NHS Trusts in Warrington^{xix} and East Cheshire^{xx} and Providence Health & Services at Saint Johns Hospital)^{xxi}
- Real-time medication adherence programs** utilizing NantHealth's Vitality GlowCaps^{xxii} with health care providers (Healthcare Partners)^{xxiii, xxiv}, pharmaceutical companies (Novartis)^{xxv}, mobile operators^{xxvi}, and large employer groups (Bank of America)
- Delivery of bedside pharmacy services** that reduces risk of readmissions through medication fulfillment
- Intelligent decision theater** and remote monitoring (Dartmouth-Hitchcock Health System)

Illness Programs: Acute Life-threatening Episodes

The broadband fiber, supercomputing cloud, decision support engines, and mobile ubiquity have been converged by NantHealth to establish a cloud-based cognitive support platform ("the smart machine era") to provide advanced 21st century care in the following case studies:

- Coordination of cancer care across the United States** through the creation of advanced virtual organizations across 55 practices, 170+ partner companies, 1,200 payers, 2,400 providers and 1,500 users: receiving 80GB of clinical data extracts every day, and handling updates of 50,000 patient charts daily. This system currently stores 21 million patient encounters, 240 million rows of lab results and 220 million rows of service line data and has been in operation since 2008.

xi <http://nanthealth.com/cos-clinical-operating-system/>

xii <http://www.comehomeprogram.com/index.php/nanthealth>

xiii <http://finance.yahoo.com/news/innovative-oncology-business-solutions-iobs-211716448.html>

xiv <http://www.woundtech.net/expertise-technology>

xv <http://www.microsoft.com/casestudies/Windows-Mobile-6.1/Wound-Technology-Network/Specialty-Practice-Heals-Patients-Faster-with-Mobile-Application-for-Home-Based-Care/4000004328>

xvi <https://www.blueshieldca.com/basca/about-blue-shield/newsroom/nant-100212.sp>

xvii <http://www.toumaz.com/sensiumvitals%2%AE-pilot-study#.U9XfsPldUk1>

xviii http://www.sensium-healthcare.com/sensiumvitals%2%AE-us#.U9bKd_ldUkO

xix <http://www.ehi.co.uk/news/EHI/8682/warrington-develops-care-coordination>

xx <http://finance.yahoo.com/news/east-cheshire-nhs-trust-selects-154123887.html>

xxi <https://www.blueshieldca.com/basca/about-blue-shield/newsroom/nant-100212.sp>

xxii <http://www.vitality.net/products.html>

xxiii <http://mobihealthnews.com/8069/study-glowcaps-up-adherence-to-98-percent/>

xxiv <http://www.vitality.net/docs/pr%20June%202010%20Partners%20Initial%20Release.pdf>

xxv <http://www.specialtypharmacytimes.com/news/Avella-Partners-with-Novartis-to-Boost-Oral-Oncology-Adherence-Rates>

xxvi <http://www.att.com/gen/press-room?pid=18878&cdvn=news&newsarticleid=31470&mapcode=>

xxvii <http://nanthealth.com/cos-clinical-operating-system/>

2. Driving cognitive support and evidence-based care

across the United States. More than 60 percent of oncology practices and well over 8,000 oncologists and nurses have adopted this tool called eviti (www.eviti.com). Health plans have also adopted this tool and eviti will serve as the platform for next generation molecularly driven clinical decision-making. To date, multiple health plans have launched eviti including WellPoint (as reported in the Wall Street Journal: *Insurers Push to Rein In Spending on Cancer Care With Costs in Mind, WellPoint Guidelines Aim for 'Best Drugs, Best Protocols* in May 27, 2014 issue)^{xxviii} and Aetna^{xxix}. By the end of 2014, a number of states will have adopted this decision support engine including Georgia, Alabama, Florida, Ohio, California, Colorado, Nevada, Kentucky, Massachusetts, and Nebraska.

a. In 2013, results were released of a multi-year study performed in association with professionals from Abramson Cancer Center of the University of Pennsylvania and Johns Hopkins Carey Business School. The study showed that 28.7 percent of cancer patients had oncology treatments prescribed that did not conform to evidence-based standards or could not be medically justified. The study also revealed that the cost of the unwarranted components of these treatments averaged \$25,579 per patient. At current annual cancer incidence rates in the US, this translates to more than \$10 billion per year in unnecessary costs that could be significantly reduced by eliminating unwarranted, non-evidence-based cancer treatment.^{xxx}

xxviii "Insurers Push to Rein In Spending on Cancer Care With Costs in Mind, WellPoint Guidelines Aim for 'Best Drugs, Best Protocols,'" *The Wall Street Journal*. http://online.wsj.com/news/articles/SB10001424052702304587704579588170876612100?mod=W_SJ_hp_LEFTTopStories&mg=reno64-wsj

xxix http://www.eviti.com/cancer_care/news-releases/aetna-eviti-launch-decision-support-program-cancer-careeffective-efficient

xxx <http://www.marketwatch.com/story/eviti-incs-study-identifies-billions-of-dollars-in-potential-savings-byeliminating-unwarranted-non-evidence-based-cancer-treatment-2013-06-03>

3. Driving molecularly-driven clinical decisions in cancer care.

A virtual organization of a Cancer Knowledge Action Network, the Cancer Collaborative, has been established for the sharing of genomic and phenotypic data amongst City of Hope, Childrens Hospital of Los Angeles, Childrens Hospital of Phoenix, Dartmouth-Hitchcock Health System, John Wayne Cancer Institute, Methodist Cancer Center, Providence Health & Services, University of California Davis, University of California Los Angeles Health System, University of Colorado Denver, The University of Texas MD Anderson Cancer Center, The University of Utah. The collaboration of these entities has resulted in astounding finding in a short period of time:

a. In July 2012, the collaborative collected 6,017 tumor and germline exomes, representing 3,022 cancer patients with 19 unique cancer types. The sample collection included: 999 breast cancer; 1,156 kidney and bladder cancer; 985 gastrointestinal cancer; 744 brain cancer; 745 lung cancer; 670 ovarian, uterine, and cervical cancer; 436 head and neck cancer; 177 prostate cancer; 70 melanoma cancer; and 35 blood tumor samples. This massive amount of data totaled 96,512 gigabytes. It was transferred and processed via a supercomputing, high-speed fiber network in 69 hours. This overall transfer speed represents a stream of one sample every 17.4 seconds, and the supercomputer analysis for genetic and protein alterations between the tumor and normal sample completed every 47 seconds per patient.

b. In 2014, at the ASCO Annual Meeting, NantHealth presented on the rapid molecular analysis of more than 10,000 tumor and germline whole exomes from 5,000 patients across more than 20 cancer tissue types concluding—in stark contrast to widely held medical assumptions today—that the molecular signature of a cancer patient is independent of the anatomical

tumor type. For illustration's sake, the finding suggests a hypothetical breast cancer patient could potentially have more in common with a lung cancer patient than another person with the same "type" of cancer.

c. In 2014, results of a collaborative study between OncoPlex Diagnostics^{xxxi}, Vall d'Hebron Institute of Oncology (VHIO), and Memorial Sloan Kettering Cancer Center, defined for the first time a quantitative HER2 protein level measured by mass spectrometry is associated with longer disease free and overall survival in patients receiving anti-HER2 treatment.^{xxxii} This is the nation's first demonstration of quantitative measurements of cancer proteins from human tissue and the study demonstrated that a breast cancer mutation HER2 could be quantitatively measured and shown to be predictive of improved response to anti-HER2 therapy in breast cancer.

d. Providence Health, NantHealth and the Chan Soon-Shiong Institute of Molecular Medicine partnered in August 2014 to create the country's first health network for clinical whole genomic sequencing. This health network spans 5 western states and serves 22,000 new cancer patients and 100,000 cancer cases per year. The partnership is installing an Illumina HiSeq X Ten sequencing system to enable the nation's first clinical whole genome sequencing paired with RNA-seq sequencing and proteomics.

Detailed Summaries of Selected Programs

21st Century Care, Decreased Costs, and Better Outcomes

A data-driven and evidence-based model of care is one that integrates research and clinical practice into a "continuum." This continuum promotes increasingly accessible data, allowing practitioners to detect and prevent diseases, improve cost transparency, and streamline health care administration, all leading toward truly personalized medicine and care.

1. Cancer Decision Support^{xxxiii}

Nearly 12 million people in the nation are living with cancer today. That number is only projected to grow with an aging population and better diagnostic tools. As the number of cancer patients increases, so does the cost associated with treating the cancer.

Today, cancer patients are being treated by oncologists who have an unprecedented amount of data at their disposal. Yet, these oncologists often lack the capability to sift through that data to find the actionable intelligence they need – when they need it.

It's a frustrating gap: oncologists have the medical technology to treat patients, but data-processing stalls linking the right patient with the right treatment.

Large insurers have joined forces to address this challenge by adopting *eviti*, an advanced cloud-based, SAAS, oncology decision support system. *eviti* delivers real-time access to evidence-based intelligence at the point of clinical prescribing. It provides the nation's most comprehensive and unbiased digital library of evidence-based oncology

xxxi www.oncoplexdx.com

xxxii <http://www.streetinsider.com/Press+Releases/HER2+Quantitation+by+OncoPlex+Diagnostics+Mass+Spectrometry+Predictive+of+Improved+Response+to+Anti-HER2+Therapy+in+Breast+Cancer/9633452.html>

xxxiii www.eviti.com

treatment regimens available, taking into account costs, outcomes, efficacy, and toxicities—including more than 1,700 treatment standards across 120 cancer types, and more than 8,000 ongoing clinical trials.

This robust library was meticulously drawn from data from governmental and industry sources, and is maintained by expert oncologists, a world-class medical advisory board, and other medical informatics professionals.

The eviti system (www.eviti.com) helps physicians match patient needs with treatments and services available, but it can also prompt physicians when a patient's diagnosis matches criteria for active clinical trials. eviti facilitates accepting patients into appropriate clinical trials with advanced diagnostic support, and includes workflows for gathering consent forms and sharing relevant trial information.

This transformative web-based solution also connects clinical decision support and automated pre-certification for oncology care — a very real need that has hampered prompt and accurate treatment for years.

The eviti automated pre-certification solution aligns the interests of payers and providers with those of patients. Payers have visibility at the moment of prescribing, and providers can be confident that the treatment they've chosen meets the clinical requirements for reimbursement. Providers gain significant efficiencies through a reduction in denials and appeals, and eviti code generation takes less than ten minutes.

Since eviti's introduction just two years ago, more than 60 percent of oncology practices and well over 8,000 oncologists and nurses have adopted this tool.

2. From Genomics to Proteomics: Actionable Treatment for Cancer Patients at the Molecular Level

A detailed understanding of how the disease affects an individual patient at the molecular level greatly enhances the study and treatment of that cancer. And now, recent developments in genetic testing and molecular profiling are heralding a new era of personalized and predictive medicine.

Genetic tests have often been prone to subjective interpretation, involving only a fraction of the human genome. Whole genome sequencing has been rare, because it's a laborious and expensive process.

New advancements make genetic tests a viable and affordable proposition, unleashing the potential for oncologists to prescribe a course of treatment based on genomic sequencing, instead of on the cancer's anatomical location. Imagine a world where a patient with breast cancer benefitted from the lessons learned from a lung cancer patient's successful treatment, all because we identified similar underlying molecular pathways.

In the past, it simply took too long to convert a patient's DNA into actionable information.

IAH recently announced an advance that reduces the genomic sequencing wait time from eight weeks, to an unprecedented 47 seconds per patient.

For the first time, oncologists can compare virtually every known treatment option on the basis of genetics, risk, and cost—before the patient's first course of treatment begins.

This genomic analysis network will help doctors make cancer treatment more efficient, more effective, and more affordable, for more patients.

What's more, with public and private partners committed to working together to beat cancer, there are no limits to what specific health discoveries might mean for all cancer patients.

Case in point: A NantHealth partner recently developed a mass spectrometry-based assay to measure the functional proteins that make a tumor unique. This multiplexed method is one of the most sensitive and specific detection tools available in the clinical laboratory today. Direct measurement of actual proteins enable researchers to report quantitative cut-off values, resulting in greater confidence in choosing appropriate targeted therapies, while avoiding therapies that may be ineffective or harmful to patients.

Increasing Access to Care

Leveraging technologies such as low-cost telehealth will increase access to underserved urban and rural areas, in addition to primary care specialties such as pediatrics, where access to neonatologists and pediatricians is deficient. Technology can reduce disparities in health care for everyone.

1. Telemonitoring (At-Home Data Capture)

NantHealth recently piloted a program targeting home-bound, high-cost, chronically and terminally ill patients in San Diego. These patients had between three and five co-morbidities with multiple readmissions to the hospital. Twenty patients were monitored for SpO₂ (oxygen saturation) and activity levels while being cared for in homes. The pilot goal was to improve quality of care while reducing cost (by reducing hospital readmissions). *Early results: only one readmission 60 days into the program.*

A mobile Internet-based video-conferencing protocol has been developed (iVisit). This system has been extensively deployed for the management of chronic wound care, with

significant cost savings and better outcomes.^{xxxiv} Wound Technology Network has deployed this system in Florida and California.

2. Hospital Connectivity in Real Time

Real-time wireless biometric and vital sign health boxes are installed on a national scale. Device connectivity is now operational at more than 250 hospitals, including 120 EPIC sites, connecting more than 6,000 medical devices and capturing more than three billion patient vital signs annually. Intelligent wireless sensors (SensiumVitals™) have been launched at hospitals in the United States and United Kingdom.

Enhancing Patient-Centered Care

Our network architecture assembles data longitudinally over time with the patient as the starting point. We use a patient-centered integrated health record system that securely and dynamically tracks changes in health information over the lifetime of the patient, so that we can help maintain patient health instead of treating diseases episodically. Information is drawn from the silos where it currently resides and self-assembles around the needs of individuals.

1. GlowCaps (Real-Time, Wireless Medication Adherence)^{xxxv}

^{xxxvi}

Adherence to prescribed medication is in the best interest of patients, doctors, providers, caregivers, and employers. IAH and NantHealth is investigating the use of Vitality GlowCaps, which promote behavior change by providing visual and audible cues, such as personal phone calls to remind patients to take their medication.

^{xxxiv} <http://www.microsoft.com/casestudies/Windows-Mobile-6.1/Wound-Technology-Network/Specialty-Practice-Heals-Patients-Faster-with-Mobile-Application-for-Home-Based-Care/4000004328>

^{xxxv} <http://www.vitality.net/products.html>

^{xxxvi} <http://www.engadget.com/2011/01/13/vitality-glowcap-review/>

Using tools such as GlowCaps, select patient populations increased medication adherence from 65 percent to more than 95 percent.^{xxxvii}

In addition, weekly email reports can be sent to a family member or friend for support. GlowCaps have a “push to refill” button that can automatically send a refill request to your pharmacy.

Independent studies by the University of Pennsylvania and Harvard University have proven that GlowCaps increase medication adherence in patient populations. Bank of America also successfully piloted a program using GlowCaps for hypertensive employees.

2. Cancer Care for Life

IAH and NantHealth are bringing together the most complete information about the patient, the latest scientific and clinical information about illness, and high-performance computing power for state-of-the-art imaging and analytics. Within this program, products, services and infrastructure capabilities are integrated seamlessly to provide a rapid learning system for the treatment of cancer. Pilot programs are in discussions with members of the CEO Council.

This program produces real-time information that assists physicians in the clinical decision process, using the power of genomic science to improve care. It will allow the rapid implementation of new and existing cancer research and evidence-based best practices to ensure more effective treatment.

Rather than using standards of care derived from large epidemiologic studies, our programs lay the foundation for tailoring health care to the individual.

Precise results from imaging studies and tissue-derived molecular information can be combined with an individual's medical and family history to generate a unique profile and create a personalized solution for each patient along the continuum of diagnosis, treatment, and care management. Pharmaceutical companies are using GlowCaps in exciting ways to explore multiple potentials.^{xxxviii, xxxix}

3. Coordination of Care for HighRisk Patients

In 2013 and 2014, NantHealth launched cloud-based infrastructure for automated assessments and proactive identification of patients likely to be at risk for repeat readmissions and a care planning and care execution infrastructure for delivering proactive care in the United States and the United Kingdom (UK NHS Trusts in Warrington^{xl} and East Cheshire^{xli} and Providence Health & Services at Saint Johns Hospital^{xlii}).

4. Establishing a Next Generation National Secure Infrastructure for Big Data Transport

In March 2011 IAH announced the funding of data centers in Phoenix and Scottsdale dedicated to health information storage, and also the funding of a dedicated supercomputer in Phoenix.

A modernized network under construction, combined with existing data centers and supercomputer connections, will enable massive amounts of genomic and proteomic data to be transmitted, analyzed and used to support clinical decisions, thereby improving health outcomes. This infrastructure will help realize the dream of effective, efficient, and truly “personalized” medicine in America.

xxxviii <http://www.vitality.net/pharma.html>

xxxix <http://www.specialtypharmacytimes.com/news/Avella-Partners-with-Novartis-to-Boost-Oral-Oncology-Adherence-Rates>

xl <http://www.ehi.co.uk/news/EHI/8682/warrington-develops-care-coordination>

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xxxvii <http://www.vitality.net/docs/pr%20June%202010%20Partners%20Initial%20Release.pdf>

In Summary

The discovery of “the God particle” (in the Large Hadron collider project) involved the collaboration of hundreds of physicists across the globe, collaborating in real-time by analyzing millions of bits of data. This achievement occurred through the creation of virtual organizations committed to a common cause, utilizing grid-computing and an information highway (the National LambdaRail) for large science projects. This was the motivation and inspiration for the medical information highway.

Very much like the billions of atoms in the universe, the biology of a human being involves the dance of millions of protein interactions. In order to establish a continuous health care learning system, which could address real-time management of patient care, at this level of insight in real time, technology platforms had to be built. From 2008 to the present, IAH and NantHealth embarked on building these technology platforms, testing the platforms individually and then integrating the platforms into a common, holistic medical information system.

The platforms ranged from novel wireless heart rate and respiratory rate sensing devices (SensiumVitals™), to interconnecting all medical devices to a connect box (HBox) from the hospital to the home, to developing wireless tools for medication management (GlowCaps), to integrating

billions of disparate data sets across disparate EMRs, multiple practice management systems, and financial processes (COS), to building highly domain specific databases with super computing platforms to drive next generation imaging (Qi Imaging), evidence-based decision-making (eviti), genomic and proteomic analysis (Five3 Genomics), and to building next-generation diagnostic systems (OncoPlexDx) to drive rapid processing of tissue to drive near-real-time molecular insights for molecular driven quantitative clinical care, Internet-based communication tools (iVisit), and finally to provide for sufficiently rapid broadband for the secure transport and storage of health data across the globe from hospital to home to data center to the mobile device.

These exhaustive disparate health platforms have never been integrated at a national and global scale. Only when they are integrated into a holistic system (the medical information highway), can we ever hope to address the root cause of the nation's failing systems and change outcome and reduce costs. This is the world's first patient-centered, cloud-based “continuous health care learning system” to enable 21st century care for all, and a modern platform for population health management and care coordination across the continuum of illness (acute, life-threatening disease) to willness (chronic disease) to wellness.



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